

**Energy Management Services Plan
1997-2002**

August 23, 1996

**Energy Management Services Division
Seattle City Light**

Energy Management Services Division Mission Statement:

“Provide a full range of cost-effective energy efficiency services for customers, in partnership with our communities, to sustain our environment for future generations.”

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EXECUTIVE SUMMARY

INTRODUCTION

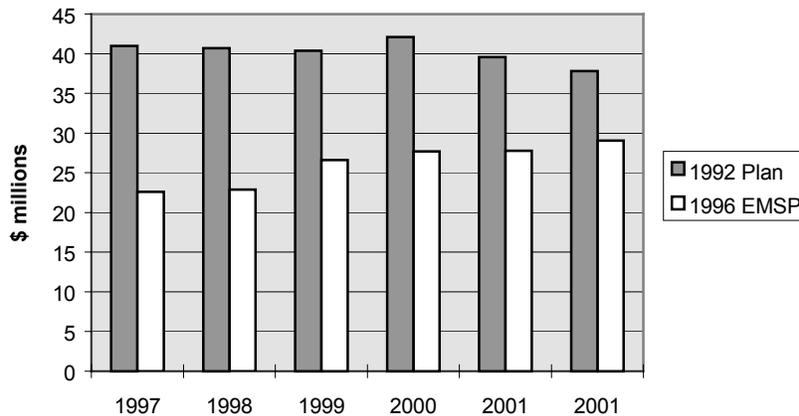
In 1992, Seattle City Light's Energy Management Services Division (EMSD) developed the *Conservation Implementation Plan: 1993-2003* (the *1992 Plan*). The *1992 Plan* detailed the strategies City Light would use to meet the City of Seattle's 10-year electrical load growth with cost-effective conservation. This translated into a goal of acquiring 100 aMW of cost-effective conservation by the year 2003. City Light is now beginning the fifth year of implementing the *1992 Plan* and over 47 aMW have already been achieved through 1995 towards this 100 aMW goal.

Since 1992, the electric utility industry has undergone significant change as a result of passage of the National Energy Policy Act (EPAct), and competition in wholesale markets is now an undisputed fact. The increasingly competitive environment, as well as other changes which have occurred since 1992, have caused City Light to reexamine the strategies, policies, and programs outlined in the *1992 Plan* to determine whether that path is still viable. This review, which in part was accomplished in the development of the *Seattle City Light Business Plan (Business Plan, July 1996)*, has revealed that energy conservation continues to be City Light's preferred resource choice, and that conservation reflects our public values, and furthers our commitment to the environment and sustainable resource management. But at the same time, EMSD will need to change a number of programs and services which will meet customers' demands in the intensifying competitive energy services marketplace.

The *Energy Management Services Plan 1997-2002 (EMSP)* documents the changes in the utility environment and details the formation of the policies and strategies necessary to deal with these changes. The *EMSP* is also built upon the premise that the 100 aMW goal is still a valid target and this document provides the framework to accomplish this task. The resource programs, and energy products and services which EMSD will offer over the next six years are also described.

Although the 100 aMW target is still the long-term goal, it will be achieved at a slower rate than was originally published in the *1992 Plan*. Instead of resource acquisition at 9-10 aMW per year with budgets of \$40 million per year, energy savings will be acquired at a rate of 6 aMW per year consistent with recommendations made in the *Draft Strategic Resource Assessment (Draft SRA)*. This level of acquisition equates to annual budgets of \$20-24 million per year. The 100 aMW savings target will be reached in the 2006-2010 timeframe, and not by the year 2003. The figure below shows a comparison of the expenditure levels for the *1992 Plan* and the *EMSP*.

Comparison of Expenditure Levels: 1992 Plan vs. *EMSP*



City Light's conservation efforts have attracted worldwide interest. The goal of this *Energy Management Services Plan* is to continue to build on the reputation and knowledge that City Light has acquired in conservation, and provide greater value to the Utility and to its customers as we move into the next century.

A CHANGING ENVIRONMENT

As the Energy Management Services Division moves into the fifth year of the *1992 Plan*, the electric utility industry is in a state of flux. Given this state of transition and uncertainty, the City Light's future energy conservation efforts should prudently reflect the changes portrayed in this environment while continuing to meet our energy savings targets and the needs of our customers. Within this evolving environment, we consider the most significant changes to be:

- **Lower Avoided Costs (MVE's):** The avoided costs, or marginal values of energy (MVEs), to which conservation is compared to assess cost-effectiveness, are lower than they were in 1992.
- **Cessation of BPA Conservation Funding:** For all practical purposes, BPA conservation funding ceased to exist as of October 1, 1995.
- **Deregulation and Increased Competition:** EPAct has ushered in an era of increasing competition in the utility industry. Widespread competition in the wholesale power markets is now a reality. Signs that competition is emerging in the retail energy services market are clearly evident, as competitors, some with ties to neighboring utilities, are already actively engaged in City Light's service territory delivering energy management services to a handful of City Light customers.
- **Demand Side Management (DSM) Trends:** Technological advancements have increased the opportunities to manage energy use in individual homes and businesses.
- **Increased Environmental Concerns:** There has been increasing concern for the environment in the last several years. This has led to the listing of several fish species under the Endangered Species Act and growing awareness of issues such as global warming.

Seattle considers environmental responsibility one of the key criteria to be met in selecting its energy resources.

- **The City of Seattle’s Comprehensive Plan:** The Comprehensive Plan, *Toward a Sustainable Seattle*, is a 20-year policy plan designed to articulate a vision of how Seattle will grow in ways that sustain its citizens’ values.

The Effect of Change

Our analysis indicates that conservation still creates considerable value as a resource, even in an era marked by lower MVEs, vanishing BPA conservation dollars, and an increasingly competitive environment. These resource benefits of conservation are derived from lower utility power costs, lower customer bills and lower environmental costs as conservation savings are realized. This resource value of conservation is carried forward in the *Business Plan* which reaffirms conservation’s place as City Light’s preferred resource choice.

However, the impacts on conservation of the changes listed above are multi-dimensional, and go well beyond our traditional resource focus. Not only will conservation policies, strategies, and programs and services in the future need to deliver 6 average MW per year as recommended in the *Draft SRA*, they will also need to meet customer demands in an increasingly competitive marketplace while supporting the core community values of the City of Seattle.

OPTIONS: STRIKING THE BALANCE

In developing a policy framework which will guide future energy management activities, staff examined the strengths and weaknesses of four strategic options which could shape conservation programs and services for the 1997-2002 period. The four strategic approaches included: market driven; regulatory; entrepreneurial; and resource-focused. Each of these strategies had relative strengths City Light should carry forward in an uncertain future. These included information and technical services in the market driven approach; the market transformation programs in the regulatory approach; the customer emphasis and comprehensive tailored energy services packages in the entrepreneurial strategy; and the collaborative resource partnerships in the resource-focused approach.

None of these approaches, by themselves, can achieve 6 average megawatts per year, meet the energy service needs of our customers in this new competitive environment, and support the values and stated goals of the City of Seattle. To achieve all these goals, City Light’s conservation programs and services must reflect an integrated package of policies, strategies, and programs which captures the strengths of each approach, and which balances near-term competitive concerns and opportunities with long-term environmental and resource benefits.

THE POLICY FRAMEWORK

The following energy management policies will guide City Light’s energy management actions for the period 1997-2002.

- City Light should take actions designed to assure the development of all cost-effective conservation within its service territory.

- City Light should provide a comprehensive array of energy management services and products.
- City Light should promote city policies and community values while working with other city departments in delivering energy management programs and services.
- City Light should offer energy management services to all customer classes in all parts of the community.

Specific strategies for City Light to pursue flow directly from at least one of the four basic policy directions. These strategies are as follows:

- Redesign programs as needed, to be cost-effective given current marginal values of energy (MVEs), taking environmental costs into account.
- Offer comprehensive energy management services.
- Deliver services in collaboration with other city utilities and departments.
- Increase customer contributions.
- Explore opportunities to offer financing to all customers.
- Continue exploration of load management approaches.
- Maximize involvement in “market transformation” programs.
- Explore opportunities for more aggressive codes and standards
- Increase conservation outreach.
- Address “stranded cost” recovery in conservation contracts.

This policy framework amounts to a renovation of City Light’s historical approach to energy management services. It recognizes and responds to the evolution of the industry’s structure, changing customer and community expectations, and the emergence of competition in the retail energy services market. It proposes to take explicit account of the environmental cost of alternatives in determining the appropriate level of conservation resource activity. It also preserves our historic commitment to equitable delivery of services to all customers. These policies all go very directly to achieving greater value out of the energy management services and programs which are described below.

EMSD PROGRAMS FOR 1997-2002

EMSD has designed a package of energy management programs and services which responds to our changing environment, carries out the policies and strategies outlined above, and achieves 6 average MW of energy savings per year.

Community Conservation

The Community Conservation Section (Community Conservation) is responsible for providing residential and neighborhood energy conservation programs and services which (1) acquire cost-effective conservation resources for the Utility and City, (2) improve the energy efficiency of customer homes and small businesses, (3) assist customers in understanding and managing their own resource use, and (4) foster energy-efficient practices in operating and maintaining homes and small businesses. In designing programs to carry out these responsibilities over the period 1997-2002, the Community Conservation Section emphasized the following themes.

- **Improved Cost-Effectiveness In Resource Acquisition.** Community Conservation has redesigned several programs to assure cost-effective resource acquisition.
- **Collaborative Delivery and Neighborhoods.** Community Conservation will build partnerships with other City departments to offer a broad array of services more efficiently, and better tailored to customer needs.
- **Market Transformation.** Community Conservation will offer continued leadership in market transformation activities related to energy-efficient appliances and lighting technologies.
- **Low-Income Support.** Community Conservation will continue to assure that energy management services and programs are designed to offer low-income customers a reasonable chance to participate and benefit.

Commercial & Industrial Conservation

The Commercial and Industrial (C/I) Section is responsible for serving City Light's commercial and industrial customers with services which will meet customers energy service demands, and which will improve their energy efficiency. In many cases, energy efficiency improvements also contribute to business profitability and plant productivity. To meet various customers' needs, the C/I programs and services are designed to:

- **Acquire a cost-effective resource for the Utility by helping customers conserve electricity.** Provide incentives to encourage the energy-efficient design of buildings or industrial processes, and to encourage the installation of energy-efficient equipment.
- **Provide customers with information.** Show customers how they spend their energy dollar and help them understand their energy use and efficiency opportunities. Inform them of best available energy-efficient practices in operating and maintaining their buildings, plants, or equipment as well as in purchasing and replacing their equipment.
- **Provide customers with technical assistance.** Improve their technical skills and troubleshooting techniques to help them operate their buildings and equipment safely, productively, efficiently, and smoothly.

In designing and operating programs and services to meet customer needs, C/I will emphasize the following themes.

- **Direct Customer Service.** C/I field staff will devote more time to developing long-term customer relationships, and to providing both incentive and non-incentive services directly to City Light's customers.
- **Seamless Service Offering:** Most C/I services will be delivered, with appropriate modifications, to either the industrial or the commercial customer sectors.
- **Services May Stand Alone Or Be Integrated.** Services will be flexibly delivered either as a stand-alone service or as an integral part of the delivery of an incentive project.
- **City Light Collaboration.** C/I will work closely with others within City Light who are similarly engaged in providing services to customers. This would include working with City Light's Account Executives to further strengthen our relationships to customers and to create customized energy service action plans and packages for key customers.
- **Multiple Resource Benefits.** C/I will collaborate with other City Departments (Water, Wastewater, and Solid Waste) in the delivery of many of its services to assure multiple resource benefits of energy efficiency projects (e.g., reduced use of water, other fuels).
- **Partnering With Large Customers.** In cooperation with others within the Department, C/I will continue to develop Partnership Agreements with very large customers to deliver the customer's full conservation potential over a period of time, and to assist customers in achieving energy efficiency gains and improve their productivity.

Lighting Design Lab

The Lighting Design Lab (The Lab) is a collaboratively funded, technical assistance center for both residential and commercial customers throughout the Northwest and British Columbia. The Lab has been operating since late 1989. The Lab will continue its mission to encourage lighting specifiers to explore energy efficiency and promote implementation through demonstrations, education, simulation and research. Along with educational services, the Lab will provide consultations, mock-ups, tours, videos, a quarterly newsletter and constantly changing state-of-the-art demonstrations. In addition, The Lab will collaborate with the InterLight program on the World Wide Web and will sign a Memorandum of Understanding with DOE to become a resource center for federal projects.

Support Services

Without support resources, the policy goals underlying this Plan and successful operation of conservation programs and services could not be achieved. Support services include long-range analytical and planning support, program evaluation and performance measurement, contractual administration, and data processing and automated tracking support.

IMPACTS OF *EMSP*

100 aMW Goal. Under this plan, the 100 aMW goal will be reached at a point later than projected in the *1992 Plan*. By 2003, instead of achieving 100 aMW, the *EMSP* program levels will achieve approximately 84 aMW. The 100 aMW goal will be achieved in the 2006-2010 timeframe.

Cost-Effectiveness. Redesigns and efficiency improvements, updated cost and savings data and changing MVEs have led to all EMSD programs producing positive economic benefits to the service territory, whether or not environmental benefits are explicitly taken into account.

Rates, Bills, Debt, and Environmental Costs. Compared to the *1992 Plan*, the *EMSP* will have less impact on average rates and debt requirements. Average bills and environmental costs will be slightly higher, due to the reduction in conservation achievements.

Customer Equity. Conservation programs create economic benefits which flow into the service area as a whole. However, customers who do not participate in current City Light program offerings, and who have not participated in past conservation program offerings, do not receive the same level of benefits as participants. The *EMSP* addresses this equity concern by assuring that energy efficiency programs and services are available to all customer segment groups. This will limit the impact on non-participating customers — past, present, and future — because fewer customers will fall into that category.

Economic Development. Analysis has shown that City Light conservation efforts have significant economic development effects through creation of jobs. It is estimated that conservation programs and services reflected in the *EMSP* will create up to 7,000 more job-years than providing an equivalent amount of power from a new generation plant. The jobs created to support the industry have included and will continue to include a number of women and minority-owned businesses.

Size of Service Area. The *EMSP* does not address the potential outcomes that might result from future decisions regarding the size of the service territory. Utility decisions which significantly impact the size or customer make-up of the service territory would require us to revisit and possibly revise this Plan.

Comprehensive Regional Review. The *EMSP* is developed in the midst of a debate over restructuring of BPA and the regional energy system. A formal process to address regional energy issues has been convened by the governors of the four Northwest states. Among the key issues on the table is the future of energy conservation in the region: who will pay for it and who will do it. The *EMSP* is a useful tool for City Light in these regional discussions as visible evidence of our sincerity in offering conservation assistance to our customers, and as a model of how to do conservation in the new restructured utility world. Radical outcomes of the regional debate (e.g., “leave it to the market” or a system benefits charge controlled by a central entity) would require us to revisit and possibly modify this plan.

CONCLUSION

The *EMSP* will guide Seattle City Light on a course consistent with City goals, customer needs, and environmental stewardship. The policies and strategies, and descendant programs, services, and products outlined in the *EMSP* will provide a resource which is cost-effective and environmentally friendly and will keep City Light, and the City of Seattle, in its position of being a national leader in the area of energy efficiency. Equally important, at a time when our customers are beginning to have choice in retail energy service providers, this package of policies, strategies, programs and services will satisfy customer energy service demands and strengthen the overall business relationships with our customers.

INTRODUCTION

In 1992, Seattle City Light (City Light) began carrying out the policies, programs and strategies outlined in the *Conservation Implementation Plan (1992 Plan)*. These programs were designed to serve City Light's 10 year load growth with cost-effective conservation. The policy direction from the *1992 Plan* translated into the goal of acquiring 100 aMW of cost-effective programmatic conservation by 2003; and, after four years of very successful program operation, over 47% of the 100 aMW target has been achieved.

As we enter the fifth year of the *1992 Plan*, the watchword is “uncertainty” as the energy industry is standing at a crossroads. BPA conservation funding has dried up, and marginal values of energy are lower than in 1992. Ahead lies a deregulated, competitive business environment where many customers will have access to a wider variety of energy products and services, and one where environmental challenges will mount as government agencies struggle to steer energy resource development along a path that is kinder to the earth.

In view of these and other changes in the utility environment, City Light has reexamined the energy conservation policies, strategies, and programs reflected in the *1992 Plan*. This review, which was accomplished as part of the development of City Light's *Business Plan*, has revealed that conservation continues to be City Light's preferred resource choice, that wise investment in energy conservation continues to be cost effective, and that we can still accomplish the goal of saving an amount of energy equal to most of the load growth we expect in the next decade. But at the same time, we will need to explore a whole new set of programs, services, and products which will meet customers' demands in an era where our customers will have the choice of who will provide them with retail energy services.

This *Energy Management Services Plan (EMSP)* presents the direction City Light's conservation and energy efficiency programs and services will take over the period 1997-2002. The *EMSP* will continue to emphasize conservation's value as an “environmentally friendly” energy resource, while also recognizing that energy efficiency provides a critical link in providing energy services to City Light customers and the community as a whole. The *EMSP* also reflects City Light's role as part of the City “family” in meeting overall City of Seattle goals and objectives.

The *EMSP* is divided into four sections. Section 1 presents the historical background of City Light conservation, and analyzes the impacts on conservation of recent changes in the utility environment. Building upon conclusions in Section 1, Section 2 presents the policies and strategies which will guide City Light conservation programs and services over the period 1997-2002. Given the policy framework, Section 3 presents the specific programs and services for the period 1997-2002. Finally, Section 4 examines the impacts of the *EMSP* on several important criteria used to develop the plan.

SECTION 1: BACKGROUND AND ANALYSIS

BACKGROUND

Energy Conservation as a Resource

City Light has a long history of energy conservation leadership, based on the City's desires to use energy efficiently while providing for the City's energy needs. Over the years, there have been a number of policy directives guiding City Light to seek energy resources which minimize the use of non-renewable resources and to select those which have least environmental impact.

In 1972, the *Seattle 2000 Commission Report* established conservation as the first choice resource to meet City Light's energy requirements. This was reinforced in 1976 in the *Energy 1990 Study* which established general energy conservation policies and goals. A fundamental policy called for conservation as the primary means to meet the Utility's future energy needs. In 1981, a resolution establishing the City's Energy Policy Goals also supported a preference for conservation and established the need for low-income weatherization programs.

Again in 1983, the *Energy 2000 Resolution* reaffirmed conservation as the first priority resource. This priority was solidified in resolutions adopting City Light's subsequent versions of the *Strategic Resource Plan*, the *Energy Resource Strategy* in 1992, and the *Conservation Implementation Plan* published in 1992.

Regional Partnership with BPA

In 1980, the Pacific Northwest Electric Power Planning and Conservation Act (The Act) was passed. Among other things, The Act established conservation as the first priority resource and charged the Bonneville Power Administration (BPA) with acquiring all cost-effective conservation to meet the region's power needs. To meet this federal mandate, BPA entered into partnerships with many electric utilities within the region, including Seattle City Light, to acquire energy resources through conservation and efficiency measures.

Funds from BPA for conservation programs were first received by City Light late in 1981 and continued for the next few years. The inability to negotiate a long-term conservation agreement with BPA resulted in Seattle City Light receiving no conservation funding from BPA in 1984 and throughout most of 1985. In October 1985, conservation funding from BPA was restored under a long-term contract. Between 1986 and 1990, BPA funding levels were generally in the range of \$2-3 million per year. Starting in 1990, support from BPA escalated dramatically, reaching almost \$14 million in 1994 and an estimated \$10 million for 1995.

Conservation Implementation Plan

In November 1992, City Light published the *Conservation Implementation Plan: 1993-2003 (1992 Plan)*. The *1992 Plan* detailed City Light's strategy to serve the Utility's 10-year load

growth with cost-effective conservation. This policy direction was recommended by a citizen's committee, and the 1992 *Energy Resources Strategy* also supported the goal of acquiring 100 aMW of cost-effective programmatic conservation by 2003.

The 10-year goal of 100 aMW was adopted by the Mayor and City Council in September of 1992. The goal was also a response to the Northwest Power Planning Council's call for 1500 average megawatts of conservation by the year 2000 and BPA's plan to acquire 660 of those megawatts from its publicly-owned customers. To achieve this level of conservation, City Light was asked to quadruple its conservation production in the decade of the nineties, compared to the decade of the eighties.

The *1992 Plan* included other goals in addition to the energy savings target:

- Expand the use of private sector delivery;
- Achieve equity in delivery of programs among the different customer groups, and;
- Minimize additional City Light FTE requirements to deliver programs and services.

City Light is now beginning the fifth year of implementing the *1992 Plan*. Over 47 aMW have already been achieved through 1995 (in addition to savings from the 1991 ESD program). Figure 1 shows the percent of the 100 aMW target achieved by year.

**Figure 1. Percent Achievement of
1992 Conservation Implementation Plan Savings Goals**

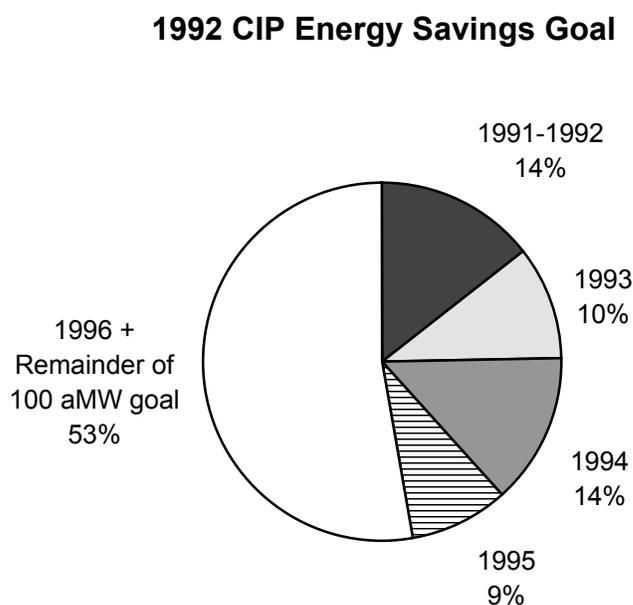


Figure 2 presents a comparison between the *1992 Plan's* budget and savings targets versus actual expenditures and savings achieved for the period 1992-1995. As the figure indicates, the total savings achieved from contracted projects between 1992 and 1995 was 47.3 average megawatts. That surpassed the established energy savings targets identified in the *1992 Plan* by 53%. Additionally, those savings were achieved with budgets that were 79% of the original projections in the *1992 Plan*.

Figure 2: Comparison of Estimated Actual vs. Projected Costs and Savings under the 1992 Plan

YEAR	Projected Budget ¹	Projection of Savings Acquired From Contracted Projects	Actual Expenditures	Estimate of Savings Acquired from Contracted Projects
	(millions)	aMW ²	(millions) ³	aMW ²
1992	\$23.7	7.9	\$17.6	14.32
1993	\$27.9	6.5	\$24.2	10.32
1994	\$32.0	7.0	\$25.6	13.60
1995	\$40.7	9.5	\$30.5	9.10
Total	\$124.3	30.90	\$97.9	47.34

¹ In budget dollars from page 2 of the 1992 Conservation Implementation Plan

² Average megawatt savings includes T & D savings; 1992 includes 2.25 aMW from the 1991 ESD program

³ Actual expenditures are in nominal dollars

In 1994, the overall cost of City Light conservation programs was approximately 24 mills per kWh to the Utility and 36 mills per kWh to the service territory (City Light's share plus participant share, net of BPA). Analysis completed as part of the *1996 Draft Strategic Resource Assessment (Draft SRA, April 96)*, projects the overall cost of current City Light conservation programs to be 23 mills per kWh to the Utility and 30 mills/kWh to the service territory for the period 1997-2015.

A CHANGING ENVIRONMENT

As we move into the fifth year of the *1992 Plan*, the Energy Management Services Division (EMSD) recognizes that the electric utility industry is in a state of flux. Given this state of transition and uncertainty, the Utility's future energy conservation efforts should prudently reflect the changes portrayed in this environment while continuing to meet our energy savings targets and the needs of our customers. Within this changing environment, we consider the most significant changes to be the following:

- **Lower Avoided Costs.** The avoided costs, or marginal values of energy (MVEs), to which conservation is compared to assess cost-effectiveness, are lower than they were in 1992. In the near term, a surplus of power is expected on the West Coast, with spot market and power prices in the neighborhood of 15 mills/kWh. In the longer term, low-cost gas and combined cycle combustion turbines have driven the average MVEs to estimates below 32 mills/kWh (in '96\$).

- **BPA Ceased Conservation Funding.** A key assumption underlying the *1992 Plan* was the continued availability of conservation funding from BPA. At the time it was adopted, the cost of the 10 year plan was estimated to be \$447 million. Of that amount, BPA was expected to finance approximately 70%. For all practical purposes, BPA conservation funding ceased to exist as of October 1, 1995.
- **Deregulation and Increased Utility Competition.** The 1992 Energy Policy Act (EPAct) has ushered in an era of increasing competition in the utility industry. Signs that competition is emerging in the retail energy services market are clearly evident, as competitors, some with ties to neighboring utilities, are already actively engaged in City Light’s service territory delivering energy management services to a handful of City Light customers. The uncertainty associated with evolution of competition in electricity markets has placed a greater focus on the customer. Maintaining and strengthening the good relationships City Light currently enjoys with its customers will be critical in the face of the intensified competitive market.
- **Demand Side Management (DSM) Trends.** In Seattle, as well as across the country, some DSM (or conservation) programs have been designed to reduce peak loads in specific areas in the Utility’s distribution system. Technological advancements have increased the opportunities to manage loads in individual homes and businesses to reduce short-term peaks. There are potentially great advantages to this type of load control in postponing or displacing the need for new distribution system investments in areas where loads are growing.
- **Increased Environmental Concerns.** There has been increasing concern for the environment in the last several years. This has led to the listing of several fish species under the Endangered Species Act and growing awareness of issues such as global warming. Seattle considers environmental responsibility one of the key criteria to be met in selecting its energy resources. In response to City Council direction, in 1994 City Light developed quantified monetary values — externality adders — for estimating the environmental impacts of energy resources. The *Draft SRA* recommends using these values in evaluating resource decisions. Use of these adders makes it possible to consider the total cost to society in comparing the environmental impacts of generation and conservation resources.
- **The Comprehensive Plan.** The City of Seattle, in response to the State of Washington’s Growth Management Act of 1990, developed an “urban village strategy” by which Seattle may focus its future growth within the context of regional growth management. The Comprehensive Plan, *Toward a Sustainable Seattle*, is a 20-year policy plan designed to articulate a vision of how Seattle will grow in ways that sustain its citizens’ values.

THE EFFECT OF CHANGE

The Energy Management Services Division has contemplated how the changes described above will influence future energy conservation activities. In an attempt to understand the effects of these changes, staff examined the impacts on the three faces of conservation: Conservation as a Resource; Conservation as an Energy Service; and Conservation and Community Values. Below is a summary of that analysis and the conclusions which were developed for each of these perspectives.

Conservation as a Resource

Three Policy Choices. The new competitive environment has raised questions regarding the value to City Light of conservation as a resource, and whether the policy direction which has been in place over the last two decades is still relevant. To explore the value of conservation as a resource, three conservation policy options for 1997 were analyzed in the *Draft SRA*. All three policy options assumed no BPA funding. Two of the policy options addressed the rate at which conservation could be acquired. The third represented an option where conservation would no longer be treated as a resource, and acquisition levels would drop to zero in 1997. Those options were as follows:

1. **Current Conservation Commitment**—Continue the current pace of acquisition called for in the *1992 Plan*.
2. **Conservation Program Slowdown**—Reduce the pace of acquisition by half, but eventually achieve the original savings goals over a longer period of time.
3. **Eliminate City Light Conservation Programs**—Reduce conservation acquisition to zero.

Conservation Resource Analysis The *Draft SRA* examined the impacts of the three conservation options on a variety of resource related criteria and evaluated the cost-effectiveness of individual City Light conservation programs. Below are the conclusions and recommendations which were developed as a result of the analysis, and which are presented in the *Draft SRA*: (for more detail see pages 45-48 of *Draft SRA*.)

“SCL’S Conservation programs remain cost-effective to participating customers; on the whole, they are also cost-effective to society when externalities are considered. However, lower-natural gas prices and technological advances in generation have reduced the benefits of conservation compared to the benefits of conservation when our current programs were designed. The loss of about \$20 million of annual Bonneville funding increases the rate impacts of conservation for SCL. Although rates are higher with conservation programs than without, average bills and environmental impacts are lower. Our recommendations our:

- Redesign conservation programs to improve cost-effectiveness and make all programs cost-effective to society using marginal values of energy which include environmental adders.
- Redesign conservation programs to maximize customer contributions to the extent consistent with acquiring cost-effective conservation.
- Include stranded-investment cost recovery provisions in new conservation contracts for large or at-risk customers.
- Slow down the pace of conservation acquisition to 5-to-7 aMW per year, or a program expenditure of about \$15 million per year in 1994 dollars (\$20 to \$24 million in current year dollars), by 1999. This will still require increasing SCL’s internal funding from the 1995 level of about \$10 million per year to make up for the loss of BPA funding.” (pp 3-4, *Draft SRA*).

Distribution Benefits of Demand Side Management Programs. Across the country, DSM programs have typically been designed to shape system-wide demand. More recently DSM programs have been used to shape demand in particular areas of utilities' distribution systems. Technological advancements have increased the opportunities to control load in individual homes and businesses to reduce very short-term peaks. This kind of load control has the potential to postpone or displace the need for distribution system investments, e.g., new transformers or substations, in areas where load growth is occurring.

In 1992-93, City Light operated a pilot project designed to test the effectiveness of load management in trimming peak loads on overloaded feeders in the Highline area of City Light's service area. The pilot, called the Peak Energy Program, demonstrated the potential demand reduction possible from controlling residential water heating and space heating for brief periods in winter months. Evaluation results for the pilot program were very encouraging. Peak load was reduced by 0.8 kilowatts per water heater and 0.6 to 1.7 kilowatts for space heaters. Virtually none of the program participants reported inconveniences due to appliance shutoff, and general satisfaction was high.

The Fuel Choice Demonstration Project was another pilot project with potential impacts on distribution systems. A joint effort between City Light, BPA, and Washington Natural Gas, the goal of this project was to gather information on how utilities could have an impact on consumer fuel-choice decisions. Customers were paid an incentive to convert from electric space and/or electric water heat to natural gas. This project had a high level of project participation (40-50%), and achieved first year energy savings of 14,299 kWh for forced air space and water heat conversions. The project evaluation concluded that an electric-to-gas incentive program was economically feasible, should the Utility desire to operate one.

Summary. The findings from the Draft SRA reaffirm conservation's considerable value as a resource, even in an era marked by lower MVE's, vanishing BPA conservation dollars, and an increasingly competitive environment. This resource value is derived from **lower utility power costs, lower customer bills and lower environmental costs as conservation savings are realized.** The recommendations made in the Draft SRA are carried out in this EMSP, in the policy framework presented in Section 2, and in the conservation resource programs which are described later in Section 3 of this plan. In addition, with City Light's initial experience in targeted DSM, this EMSP will provide the framework to explore DSM options in addressing increased demands on capacity-strained local distribution systems.

Conservation as an Energy Service

Changes in the electric utility industry extend far beyond the wholesale power markets. Our customers, particularly the larger commercial and industrial consumers, are beginning to demand choice in seeking alternatives in retail energy service providers, and a number of utilities and other entities are looking to enter the retail market to serve those demands. In fact, a handful of competitors, some with ties to neighboring utilities, have already established a "foot in the door" of City Light's service territory by signing agreements with current City Light customers to provide energy management services.

In the past, price has been the predominant criteria for success in the utility industry. However, price alone will not carry the day in this new environment. In our opinion, the most valuable and sought after piece of the future electric utility business will be the customer relationship. Maintaining and strengthening the current relationship City Light enjoys with its customers will depend upon how well City Light serves customer energy service needs in the “new” face of competition. Utilities who can create “value” through customized and integrated packages of customer services will be in a stronger position to maintain solid customer relationships, retain key customers, and increase customer satisfaction. Continued focus on the relationship with our customers, customer attitudes and values, and customer energy service needs, will provide the ingredients for continued success with our customers in an increasingly competitive energy services marketplace.

What Do Our Customers Demand? Information is “power”. Knowing who your customers are and what they desire and demand in terms of electric energy services and products will be critical for maintaining happy customers and assuring a prosperous, thriving utility. EMSD has developed considerable market intelligence on customer attitudes and values related to conservation and energy services. Below is a general summary of some of the key findings from this market research.

- Price, suitability and comprehensiveness will greatly influence the success of energy services provided to the customer;
- There is a market for new energy services, products, and technologies, with potential for “fee-for-service” packages in some situations;
- Customers continue to value the benefits they receive from energy services and efficiency;
- Customers need accurate, reliable, and understandable information to make intelligent decisions regarding their energy use and;
- Customers have a very favorable opinion of the technical ability of City Light staff, and City Light is seen as an unbiased and trusted provider of information.
- Incentives are needed to induce customers to make large capital expenditures;

Summary. Competition in the energy services marketplace is happening now. While price is clearly important, our customers expect superior service in meeting the full range of their energy service needs. This expectation will be heightened as competition in the retail energy services market intensifies. Customers tell us they greatly value energy efficiency services. EMSD should strive to deliver these services as part of a comprehensive, individually tailored package of energy services offered by City Light to meet customer needs.. This type of comprehensive approach in delivering energy management and conservation services will:

Help retain key customers

- Improve customers’ ability to manage their own energy use

- Leverage resource incentives to achieve resource saving targets
- Support City economic development goals.

Conservation and Community Values

Sustainability refers to the long-term social, economic, and environmental health of our community. From the many discussions and debates that contributed to the development of the Comprehensive Plan, a simple set of four values — Seattle’s core values — has emerged. These core values, which are described below, are the key components of sustainability, and should form the social underpinnings for the conservation programs and services developed in this plan:

- **Community.** The health of the City and of the whole region depends on a strong sense of community within and between neighborhoods and across city and county boundaries. At the neighborhood level, residents and businesspeople experience the greatest sense of belonging to a community. The sense of community will be increased as the City joins with community residents and business people to find acceptable, desirable, and innovative ways to achieve Seattle’s goals through neighborhood planning processes.
- **Environmental Stewardship.** Seattle continues to be a national leader in environmental stewardship, and will work with residents, employees, businesses, institutions and neighboring jurisdictions to strive for improvement in the quality of the City’s and region’s air, water, soils, and built environment.
- **Economic Opportunity And Security.** A strong economy is fundamental to maintaining the quality of life in Seattle. In a healthy economy, individuals will be able to meet basic needs for food and shelter, health care and education, and the community will be able to generate the resources necessary to help those people within the community who need assistance.
- **Social Equity.** Resources and opportunities are not limitless and must be shared among all members of the community. Seattle will strive to ensure that its citizens have the education, skill, and opportunity to participate in and benefit from economic growth

Summary

The effect of change on conservation is multi-dimensional. The findings and conclusions above strongly suggest that in this changing utility environment, conservation policies, strategies, and programs in the future should (1) deliver a cost-effective resource, (2) speak effectively to customer needs in this new utility era, and (3) support the City of Seattle’s core values. Section 2 of the *EMSP* builds upon these findings and conclusions in presenting the policy framework which will guide City Light’s conservation efforts through 2002.

SECTION 2: POLICY FRAMEWORK

The findings in Section 2 form the foundation for the policy framework which will guide future City Light conservation activities. In developing that framework, staff examined the strengths and weaknesses of four strategic options which could shape conservation programs and services for the 1997-2002 period. Below is a summary of the review of those four options.

OPTIONS

Market Driven Approach

A market driven approach to delivering conservation at City Light would rely solely on the marketplace to deliver energy savings. The underlying premise for this approach is that consumers, when given the appropriate price signals, will invest in efficiency measures on their own because it is in their best economic interest to do so. In support of the market, City Light would provide customers with information and technical assistance on energy-efficient measures, equipment, practices and opportunities, so that customers will be able to make informed choices in the market place. This package of information and technical assistance would be part of the basic customer services offered to all customers. There would be no incentive or loan programs, nor any special low income assistance, grants, or services beyond the basic package.

The strength in this approach is the recognition that energy efficiency information and technical assistance is a basic customer service provided by the utility to all customers. The most serious concern of this approach is whether the market can deliver resource energy savings at the levels recommended in the *Draft SRA* and proposed in this *EMSP*. As indicated in Section 1, the *Draft SRA* calls for slowing down conservation acquisition to a rate of 5-7 aMW per year for the period 1997-2002.

To answer this question, we turned to Appendix G (“Conservation Cost, Performance, and Value”) of the Northwest Power Planning Council’s (NPPC) *1996 Draft Power Plan*. The NPPC analysis indicated that approximately 12% of regionwide cost-effective conservation over the period 1996-2015 would be achieved as a result of customer response to power prices and by market driven utility information programs.

Seattle’s share of regionwide cost-effective conservation, above and beyond what has already been achieved through 1995, is estimated to be between 80 to 100 average megawatts through 2015 (assuming that Seattle’s share of the available conservation is roughly equivalent to City Light’s percentage of regionwide loads). Of that total potential, roughly 12% of that total, or 9-12 aMW, can be achieved over the period 1996-2015 through a combination of the market forces and a City Light market driven program. This equates to less than 1 average megawatt a year, which would fall far short of delivering the resource at levels recommended in the *Draft SRA*.

The market driven approach would be more effective if rates for all customers were set at levels reflecting the appropriate long-term price signals tied to long-term MVEs which reflect

environmental adders. These higher price signals would increase the customer response and investment in energy efficiency, and thus create more energy savings. However, in an era when competitive forces dictate keeping rates as low and as stable as possible, this approach has less appeal, and would still fall significantly short of the 5-7 aMW recommended in the *Draft SRA*.

The inadequacy of the market driven approach to sustain a moderate level of resource development is consistent with what we have learned in recent market research, and in actual program operations over the past decade. Many City Light customers typically do not invest in energy efficiency on their own, even when it is in their own best economic interests to do so. Market barriers to individual investment include: (a) high initial cost and limited access to capital, (b) lack of information, (c) price distortions, (d) inconvenience, (e) high transaction costs, and (f) high rate of return requirements.

Regulatory Approach

Where a market cannot or will not deliver, a regulatory approach combined with market transformation programs may be a better and more effective alternative. A regulatory strategy relies solely on codes, mandatory standards, and other regulatory means to achieve conservation savings. Energy savings can be acquired through regulation and/or mandatory standards whether implemented at the federal, state, county, or city level. This option can be applied to building codes or appliance and equipment efficiency standards, and the approach has been fairly successful in the Pacific Northwest. For example, the Model Conservation Standards and the Non-Residential Energy Code have accounted for a significant contribution to energy savings captured within the last decade. A regulatory approach would call for City Light and the City to push for federal, state and municipal laws to insure that all new appliances, equipment and buildings are energy efficient, and reflect state of the art energy conservation technologies.

Under a regulatory approach, City Light conservation programs would be made up of (1) projects demonstrating the technical feasibility of energy efficiency measures for codes or standards, and (2) market transformation programs. The “market transformation” paradigm suggests that conservation programs should more consciously focus on approaches which will ultimately alter the market so that only efficient equipment is available, and efficient construction becomes standard practice. Market transformation is defined as the strategic effort by utilities and other entities to induce lasting structural or behavioral changes in the market that result in increases in the adoption and penetration of energy-efficient technologies and practices.

The attributes which shape market transformation activities include: strategic intervention based on market knowledge; collaboration between utilities, trade allies, and manufacturers; efficiency in achieving energy savings; and a lasting impact without incentives. One of the ways to accomplish this transformation is by focusing attention at higher levels in the conservation “food chain,” i.e., spend more time working with manufacturers, wholesalers and distributors of efficient equipment on efforts to design and demonstrate the technical feasibility of energy efficiency measures or the market acceptability of new technologies.

The combination of codes and mandatory standards along with market transformation programs has definite advantages. First, once the regulatory mandate is in place, energy savings are guaranteed for the life of the statute. Second, market transformation programs will generate

significant long-term energy savings, with little or no programmatic intervention once the market has been transformed.

However, there are several barriers identified with this approach:

- Current energy codes were not adopted overnight. It took the State of Washington over seven years to sign the MCS standard into law. Any new regulatory proposals would also take considerable time to adopt, pushing savings from these types of measures beyond the 1997-2002 period.
- Similarly, market transformation programs require considerable time and significant collaboration from key parties within defined market areas in order to provide lasting effects in the market place. While this is an area where BPA continues to maintain a financial presence within the region, the pace is glacially slow.
- Existing building codes were developed at a time when MVEs were considerably higher. Given current MVEs, cost-effective measures and savings not yet required by current codes would be limited.
- Politically, the era of government intervention is waning. Even though there are significant societal benefits to a mandatory approach, political support would be difficult to find. A recent example of this political fallout comes from the Department of Energy's decision to delay the establishment of more stringent appliance efficiency standards.
- This approach would only attain a small portion of the 5-7 average megawatts recommended in the *Draft SRA* and this *EMSP*.

Entrepreneurial Driven

The entrepreneurial approach is one in which City Light's overall goal moves away from meeting resource goals, and moves closer to competing effectively in the energy services market, where conservation investments are solely driven by energy market conditions. Under this strategic direction, City Light's conservation programs, products, and services would be offered to achieve revenues, retain current customers, attract new customers, and to expand City Light's service territory. Programs and comprehensive energy services would be developed and offered on a fee-for-service basis, new efficient electro-technologies would be aggressively marketed, and tailored comprehensive energy service packages would be part of power delivery deals to key customers.

The entrepreneurial approach would be most effective under a highly competitive utility power market, and has some potential to achieve revenue for the utility and stimulate economic development within the City. The primary strength of this approach is the recognition that energy efficiency is a critical link in helping draw new customers, in maintaining the existing customer base, and in helping existing customers remain economically competitive. The success of this approach would depend on how well City Light could overcome the barriers listed above under the Market Driven option.

The most significant drawback of the entrepreneurial approach is that it is driven by a short-term market perspective, and, as such, it will not meet long-term resource targets, nor does it recognize the environmental benefits associated with conservation.

Resource Driven

In a resource driven approach, conservation programs would be designed for one solitary goal: to acquire the conservation resource as the first choice to serve the loads of all the Utility's customers. This strategy would call for conservation investments and would be driven solely by a long-term perspective and would recognize the environmental benefits in making conservation and other resource decisions. In order to achieve high levels of the conservation resource, incentives would be offered on an on-going basis to customers in all classes to install energy-efficient measures or build energy-efficient buildings. In addition, collaborative partnerships with other City Departments and with City neighborhoods would be developed and maintained in order to deliver long-term multi-resource conservation savings (water, solid waste, etc.). Finally, targeted load management and DSM programs would be implemented where possible as an effective solution for addressing stresses and strains on the local T&D system.

The strengths of this approach are that it would provide the Utility with a low cost, environmentally friendly resource which would meet savings targets recommended in the *Draft SRA*, while lowering the bills of participating customers. In addition, collaborative partnerships would provide an effective means to support multi-resource conservation goals within the City. The disadvantages of this approach are that overall rates would be marginally higher, and conservation budgets would be greater over the 7 year period than the other four options explored.

Striking the Balance

It would be foolhardy to select and blindly follow any one of the options above. No single approach by itself can achieve 5-7 average megawatts per year, meet the energy service needs of our customers in this new competitive environment, and support the values and stated goals of the City of Seattle. However, each of the options described above has certain strengths. Examples of such strengths are the information and technical services in the market driven approach, the market transformation programs in the regulatory approach, the comprehensive tailored energy efficiency services packages in the entrepreneurial approach, and the collaborative resource partnerships in the resource driven option.

These and other strengths from each of the options are carried forward in the remainder of this section and in Section 3 as part of an integrated package of policies, strategies and programs which balance near-term competitive concerns with the long-term environmental and resource benefits of conservation acquisition. In striking that balance, the policy framework for our future is organized around two major themes. First, EMSD prefers to describe what it is proposing at City Light as a renovation, rather than a reinvention, of conservation and energy management services. What is proposed is not to begin again, but to improve a fundamentally sound structure. The second theme is value and values. The *Energy Management Services Plan* must be designed both to deliver economic value to our customers and to faithfully reflect the values of our community.

THE POLICIES WHICH WILL GUIDE US

The following four energy management policies will guide City Light's energy management actions for the period 1997-2002.

- **CITY LIGHT SHOULD TAKE ACTIONS DESIGNED TO ASSURE THE DEVELOPMENT OF ALL COST-EFFECTIVE CONSERVATION WITHIN ITS SERVICE TERRITORY.**

First we reaffirm that conservation remains the first priority resource option for Seattle. Conservation remains our resource of choice because of it reflects our public values, and furthers our commitment to the environment and sustainable resource management.

The quantity of conservation which is cost-effective is smaller today than it was when our existing Conservation Implementation Plan was adopted in 1992. But the pool of cost-effective conservation, while smaller, is still substantial and will not be captured absent active intervention by City Light. The 100 aMW target from the *1992 Plan* remains a viable goal to achieve.

Where possible, City Light will explore load management and other demand-side management opportunities as a way to reduce power costs and distribution system investments. Investments in expanding distribution system capacity, driven by growing peak loads, are a significant driver of capital expenditures. Geographically targeted load management could be a key part of a strategy to control future costs.

- **CITY LIGHT SHOULD PROVIDE A COMPREHENSIVE ARRAY OF ENERGY MANAGEMENT SERVICES INCLUDING, BUT NOT LIMITED TO, ENERGY EFFICIENCY SERVICES.**

Widespread competition in the wholesale power markets is now a reality. Competition in the retail power markets is emerging as customers begin to exercise choice in who will provide them with retail energy services. Retail energy service competition is now evident in City Light's own service territory, as competitors, some of which are linked with neighboring utilities, are already actively engaged in City Light's service territory delivering retail energy management services to a handful of City Light customers. Given these undisputed facts, an increased and broadened emphasis on customer-focused energy management services is critical and has multiple benefits at this particular time.

Our past, nearly exclusive, focus on energy-efficiency services is too narrow to fit today's circumstances. There is no doubt that most customers' largest energy-related concern has to do with cost. For those customers, conservation deals with that concern by implementing cost-effective actions to reduce their electricity bills.

But customers have a range of other needs and issues for which energy-related solutions are available. City Light can, and should, work with those customers to identify and implement energy-efficient technologies which will assist the customer in meeting the needs of their homes or businesses. For example, increasing customer awareness on equipment operation & maintenance (O&M) practices has several potential benefits, not all directly related to saving energy. By improving O&M practices, customers could receive reduced maintenance costs,

reduced equipment down time, and increased equipment life, thus leading to a more efficient operation.

Providing comprehensive value-added customer services has two clear benefits. First, by packaging efficiency services with other services meeting customer needs, we provide the customer with a larger package of value. This increased value leverages customer investments in energy efficiency by increasing the likelihood of customer implementation of recommended conservation measures.

Second, in the face of increased competition in the retail energy services market, these expanded energy management services will be a real competitive advantage for City Light in strengthening customer relationships, retaining key customers, and attracting new customers.

- **CITY LIGHT SHOULD PROMOTE CITY POLICIES AND COMMUNITY VALUES WHILE WORKING WITH OTHER CITY DEPARTMENTS IN DELIVERING ENERGY MANAGEMENT PROGRAMS AND SERVICES.**

The role of conservation as part of Seattle’s environmental and social agenda has long been a key one. In recent years, City Light conservation programs have contributed considerably towards a sustainable culture through an increasing degree of collaboration with other City utilities, departments, and the community in meeting common goals and objectives. We have seen the evidence of the potential benefits which can be derived from collaborative delivery of City services, most recently with the Fremont Neighborhood Power Project.

In an era of growing public skepticism about government and of ever-tighter public sector budgets, the need for this coordination and collaboration is ever more important. The City absolutely must “have its act together”, and spend ratepayers’ money efficiently if it is to retain the confidence of its citizens, and if the City is to move forward as a community to a sustainable Seattle reflecting the “core” values described in Section 1.

- **CITY LIGHT SHOULD OFFER ENERGY MANAGEMENT SERVICES TO ALL CUSTOMER CLASSES AND ALL SEGMENTS OF THE COMMUNITY.**

Finally, we must call out one general City policy as particularly important in thinking through our new plan, and that is a concern for equity in the provision of City Light services.

Our services should be designed so as to offer benefits to all kinds of customers — large and small; residential, commercial and industrial; in the Rainier Valley as well as in Laurelhurst. This kind of equitable access to services may be directly endangered by an increasingly competitive environment, making City Light’s commitment to equity more critical, and more challenging, than ever. But, in our view, if the City stands for anything, it stands for fairness to all our people.

STRATEGIES FOR THE FUTURE

The remainder of this section outlines a number of key strategies or approaches designed to actualize these policy directions outlined above. Many of the strategies described here support more than one of the policy directions; all of them follow directly from at least one of the basic policies.

- **Redesign Programs As Needed, To Be Cost-Effective Given Current Marginal Values Of Energy (MVEs), Taking Environmental Costs Into Account.**

MVEs have declined substantially since the 1992 preparation of the *Conservation Implementation Plan*. Programs developed under that plan were designed to be cost-effective to the service territory in an environment of 55 mill MVEs. Even with the inclusion of quantified environmental costs, today's MVEs are below 1992 levels. Programs need to be reviewed and redesigned, if necessary, to show a positive net present value to the service territory.

- **Offer Comprehensive Energy Management Services.**

As Amory Lovins has frequently reminded us, “There is no end-use market for electricity.” Consumers don't actually want electricity; they want energy services. As K.C. Golden likes to put it, “Customers want to keep the beer cold and the pizza hot.”

No one eats, drinks, wears or otherwise directly consumes kilowatt hours or therms. Energy services are the end-use product. Consumers combine energy, equipment, structures and human guidance to produce needed services like lighting, heating, cooling, and motor drive. Energy is only an input in providing these desired services.

Despite its name, the Energy Management Services Division has historically focused almost exclusively on energy-efficiency services. This plan proposes a departure from that narrow service offering. Advice and assistance in the efficient use of energy will remain a mainstay. But wherever energy is a significant part of potential solutions to customer needs and problems, City Light and EMSD should have a role in offering and providing a more extensive array of customer energy services.

City Light has a long history in conservation, and as a result, many of the easiest targets and measures have already been reached. For the harder to reach customers, and the more expensive measures, additional incentives may be needed to induce parties to participate in programs. Embedding electric efficiency in the context of either comprehensive energy services or multiple-resource conservation offers the customer a larger, and more appealing, package of value, which will leverage City Light incentives to acquire resource savings, while satisfying the customers energy service needs.

Comprehensive energy management services will fall along a continuum, ranging from high return to the utility (in energy savings) to high return to the customer (with little or no energy savings). As we move into services where the return is primarily, or exclusively, to the participating customer, a funding partnership approach may be less appropriate. Some basic level of energy management services probably should remain part of the package that any customer gets when purchasing energy from City Light. At a minimum, such basic services will be a powerful tool in maintaining customer loyalty. This loyalty will be crucial in retaining customers as competition increases in the retail energy services market. As City Light field staff become a more experienced, skilled, and “valued” provider of more extensive customer energy management services, we will explore offering some of these services on a fee-for-service basis.

- **Deliver Services In Collaboration With Other City Utilities And Departments.**

City Light has its own conservation activities and programs, but these are not the only resource conservation activities run by City utilities. The Water Department has an active conservation program and the Solid Waste Utility carries on a variety of waste reduction and recycling programs.

Over the last several years the Departments have found a variety of opportunities to collaborate in delivering conservation services (e.g., Home Water Savers, Model Conservation Home). This plan envisions a significant and systematic expansion of collaboration in delivery of conservation. Specifically, we are moving towards designing programs with integrated multi-resource conservation built in from the ground up.

Delivering conservation services in an integrated fashion has several real benefits. First, by eliminating duplicative program marketing and delivery costs (deliver the service once in one package, rather than three times in three separate packages) the costs of capturing the resource savings should be reduced. Second, packaging together energy savings, water savings, and reductions in solid waste should enhance program participation by offering customers a larger total package of value in return for participation. Finally, from the customer's viewpoint, integrated programs offer not only a bigger payoff, but have the virtue of simplicity. A "seamless" package means that the customer has to deal with us only once rather than multiple times, increasing the customer's perception of efficient service delivery by the City.

- **Increase Customer Contributions.**

On average, City Light incentive-based programs pay incentives which cover approximately fifty percent of the incremental cost of high-efficiency structures and equipment. To the extent possible, we will redesign programs to increase the customers' share of costs. Increasing the customers' share of costs in City Light programs, and reducing the Utility's share will provide at least two potential benefits: (1) City Light dollars go further in leveraging customer energy-efficiency investments, and (2) rate impacts of conservation are reduced.

It is important to note, however, that reducing the Utility share of costs, does not improve overall program cost effectiveness. Since cost effectiveness is evaluated from a service territory perspective, shifting costs to customers within the service territory does not reduce the total costs. Also, opportunities to increase the customers' share may not be possible without increasing marketing/delivery costs or significantly reducing program participation, and affecting the levels of cost-effective conservation acquisition.

- **Explore Opportunities To Offer Financing To All Customers.**

City Light has, in the past, included loans as part of its offering in its residential weatherization programs, but has not offered a more comprehensive loan or financing program. This plan proposes to explore opportunities to offer financing to all customers. For example, one option City Light may pursue is a loan program in cooperation with commercial banks. The bank would make the actual loan to the customer. City Light's role would be to provide a loan guarantee and to "buy down" the interest rate to a rate equal to our tax-exempt cost of capital. Such a program, if designed free of customer barriers, would be an additional service offered to customers and may provide a supplement to incentives.

- **Continue Exploration Of Load Management Approaches.**

An increasing focus on load management requires us to expand our “toolkit” for load shaping and shifting. In the last several years, City Light has piloted several approaches to this task. The Peak Energy Program tested remote cycling of water and space conditioning equipment in the residential sector, employing a power line carrier system. The Fuel Choice Pilot tested our ability to influence residential fuel choice so as to reduce peak load in a particular neighborhood. The Fremont Neighborhood Power Project tested geographically targeted delivery of our existing conservation programs. All of these mechanisms have proven to have real promise, but they by no means exhaust the list of possible tools for load management.

In the last quarter of 1996, City Light will begin operation of a demonstration program to test, on a small scale, load management approaches in the commercial sector. Under this pilot, upon request from City Light, a “load-shedding cooperative” made up of a block of 3-5 commercial customers, would take actions, of their own choice, to temporarily reduce their load. City Light also will test the effectiveness of cooperative members using existing energy management control systems to drop or cycle load under certain pre-defined parameters which would be programmed into the control systems.

- **Maximize Involvement In “Market Transformation” Programs.**

City Light and other Northwest conservation programs have, historically, focused on affecting end-use consumer choices. This has been an effective “retail strategy” for acquiring conservation. The cumulative effects of increasing end-user demand for efficient equipment and construction practices have also had some lasting effect on the broader construction and equipment markets.

BPA and a number of Northwest utilities have begun to systematically attempt to develop programs and strategies explicitly designed to not just acquire savings in particular facilities, but to transform markets. City Light has played a leadership role in a couple of the first such programs to come down the pike: the “LightSaver” program in the residential lighting sector, and the forthcoming “Cleaner Northwest” project designed to promote energy and water efficient clothes washers.

This plan assumes that City Light should and will play an active role in local, regional and national market transformation programs.

- **Explore Opportunities For More Aggressive Codes And Standards.**

The ultimate in market transformation is, of course, to lock efficient practice into law through building codes and equipment efficiency standards. Such an approach should thoroughly eliminate the least efficient equipment and practices from the market, creating a new “floor” from which future programs may attempt to again raise the bar.

Under this plan, City Light will aggressively explore and pursue opportunities to push codes and standards to the highest level consistent with other public policy goals, e.g., maintaining housing affordability. In an era of declining avoided costs, it will by no means be a slam dunk to identify measures which should be required by law, but the benefits of this approach, where practicable, make City Light attention to the issues imperative. The most immediate opportunities in this

sector will come in the Federal rulemakings for a number of appliances which are mandated by the Appliance Energy Conservation Act. City Light will play an active role in these rulemaking proceedings over the next couple of years.

- **Increase Conservation Outreach.**

Over the last two years the community outreach efforts for the Utility's conservation program have changed substantially. The numbers of events have increased significantly from a handful to over a dozen community fairs, shows and exhibits. These include activities with a regional scope (such as the annual Home Show at the Kingdome) to those with a more narrowly defined focus (e.g., the Garfield Community Center's Intergenerational Fair); from trade shows (such as the commercial/industrial Prospec 96) to hosting activities for foreign dignitaries and DSM/conservation professionals.

The Mayor has directed departments to step up our outreach interactions with neighborhoods and the City's ethnic communities. City Light has been a leader in this area and has been a key player in the beginning efforts to collaborate the outreach activities of the various City departments. In the future, it is planned that City Light will be even more aggressive in seeking out these outreach partnering opportunities to not only continue complying with the mayoral directive, but also to decrease outreach expenditures for each participating department. Another benefit of these arrangements is the more effective use of the scarce employee resources to staff these events.

- **Address "Stranded Cost" Recovery In Conservation Contracts.**

A number of utilities, facing the possibility of customer fuel switching or of customer choice in retail electric supply, have expressed concerns about the possibility that conservation investments might become "stranded assets." In other words, if a utility pays part of the cost of installing efficient equipment in a customer's home or business and that customer then switches to gas or to another electricity supplier, the utility which provided the original incentive will not receive the expected return on that investment.

Although City Light believes that its own competitive position is comparatively strong, it is only prudent to address the stranded cost issue. The means proposed to address the issue is stranded cost recovery language in conservation contracts with customers.

An example for such language was our conservation agreement with the University of Washington. In brief, that contract, for the energy-efficient retrofit of many buildings across the UW campus, provides that, in the event the UW leaves our system — whether by fuel switching, contracting with another supplier, or self-generating (cogeneration) — during the useful life of the conservation measures we paid for, the UW will reimburse City Light for a pro rated share of the incentives paid for those "stranded measures."

We have extended such language to all of our commercial/industrial contracts. At this time, it is unclear whether enforcing such provisions in our smallest projects, e.g., single-family weatherization, would be worthwhile. This issue will be studied further in the future.

SUMMARY

This package of policies and strategies amounts to a thorough renovation of City Light's historical approach to energy management services. While it reaffirms conservation traditional role as the preferred resource of choice, it also recognizes and responds to the evolution of the industry's structure, changing customer and community expectations, and the emergence of competition in the retail energy services market.

This "renovation" should enhance the economic value of our activities to customers and the community. Improving cost effectiveness, extending load management and conservation as an option into the distribution arena, offering to help customers deal with a wider array of energy management issues, and working with customers wherever energy is a significant part of potential solutions to meet their needs, all go very directly to getting greater value out of our energy management services.

The next section of this plan lays out in some detail specific programs intended to implement the policies and strategies described in this section.

SECTION 3: EMSD PROGRAMS FOR 1997-2002

The Energy Management Service Division has designed a package of conservation programs and energy services which we believe adequately respond to the changes identified in Section 1, and will carry out the policies outlined in Section 2. The programs are designed to achieve 6 average MW per year over the next six years. Figure 3 shows EMSD's proposed budget for the life of this plan.

Figure 3. EMSD Budget for 1997-2002

	1997			1998			1999		
	aMW	Budget	FTEs	aMW	Budget	FTEs	aMW	Budget	FTEs
COMMUNITY CONSERVATION			23.5			23.5			23.5
RETROFIT	0.73	\$ 4,074,357		0.73	\$ 4,065,739		0.73	\$ 4,377,679	
NEIGHBORHOOD	0.07	\$ 245,133		0.09	\$ 274,630		0.09	\$ 288,763	
NEW CONSTRUCTION	0.25	\$ 1,276,029		0.25	\$ 1,272,100		0.25	\$ 1,416,154	
LOW INCOME	0.19	\$ 2,006,028		0.19	\$ 2,007,217		0.19	\$ 2,262,126	
APPLIANCE & LIGHTING	0.15	\$ 650,683		0.19	\$ 750,618		0.23	\$ 874,578	
OTHER		\$ 507,044			\$ 521,392			\$ 547,160	
SUB-TOTAL	1.39	\$ 8,759,274		1.45	\$ 8,891,696		1.49	\$ 9,766,460	
COMMERCIAL INDUSTRIAL			28			28			28
ESD	3.02	\$ 7,195,303		3.02	\$ 6,767,803		3.02	\$ 8,849,579	
ESP	1.60	\$ 3,019,463		1.60	\$ 3,429,000		1.60	\$ 3,730,043	
ADMINISTRATIVE		\$ 93,699			\$ 96,030			\$ 99,422	
SUB-TOTAL	4.62	\$ 10,308,465		4.62	\$ 10,292,833		4.62	\$ 12,679,044	
SUPPORT SERVICES			28			28			28
LIGHTING LAB		\$ 674,934			\$ 702,603			\$ 769,391	
DIVISION SUPPORT		\$ 1,281,427			\$ 1,379,939			\$ 1,680,342	
EVALUATION		\$ 986,742			\$ 999,088			\$ 1,087,876	
POLICY & PLANNING		\$ 388,734			\$ 400,210			\$ 418,110	
DIRECTOR		\$ 205,407			\$ 210,436			\$ 202,497	
SUB-TOTAL		\$ 3,537,244			\$ 3,692,276			\$ 4,158,216	
DIVISION TOTAL	6.01	\$ 22,604,983	79.5	6.07	\$ 22,876,805	79.5	6.11	\$ 26,603,720	79.5

	2000			2001			2002		
	aMW	Budget	FTEs	aMW	Budget	FTEs	aMW	Budget	FTEs
COMMUNITY CONSERVATION			23.5			23.5			23.5
RETROFIT	0.73	\$ 4,488,946		0.73	\$ 4,273,686		0.73	\$ 4,796,744	
NEIGHBORHOOD	0.09	\$ 296,430		0.09	\$ 306,653		0.10	\$ 316,875	
NEW CONSTRUCTION	0.25	\$ 1,453,317		0.25	\$ 1,502,716		0.25	\$ 1,552,384	
LOW INCOME	0.19	\$ 2,322,245		0.19	\$ 2,402,240		0.19	\$ 2,482,250	
APPLIANCE & LIGHTING	0.27	\$ 932,038		0.16	\$ 655,772		0.20	\$ 729,850	
OTHER		\$ 541,800			\$ 571,236			\$ 591,136	
SUB-TOTAL	1.53	\$ 10,034,776		1.42	\$ 9,712,303		1.47	\$ 10,469,239	
COMMERCIAL INDUSTRIAL			28			28			28
ESD	3.02	\$ 9,400,314		3.02	\$ 9,546,624		3.02	\$ 9,691,910	
ESP	1.60	\$ 3,855,698		1.60	\$ 4,031,697		1.60	\$ 4,169,702	
ADMINISTRATIVE		\$ 102,061			\$ 105,581			\$ 109,100	
SUB-TOTAL	4.62	\$ 13,358,073		4.62	\$ 13,683,902		4.62	\$ 13,970,712	
SUPPORT SERVICES			28			28			28
LIGHTING LAB		\$ 789,827			\$ 813,947			\$ 844,183	
DIVISION SUPPORT		\$ 1,763,273			\$ 1,743,969			\$ 1,898,913	
EVALUATION		\$ 1,116,751			\$ 1,155,260			\$ 1,193,770	
POLICY & PLANNING		\$ 429,258			\$ 444,076			\$ 458,911	
DIRECTOR		\$ 208,223			\$ 215,538			\$ 222,951	
SUB-TOTAL		\$ 4,307,332			\$ 4,372,790			\$ 4,618,728	
DIVISION TOTAL	6.15	\$ 27,700,181	79.5	6.04	\$ 27,768,995	79.5	6.09	\$ 29,058,679	79.5

The discussion of these programs and services is organized below under the following categories: (1) Community Conservation; (2) Commercial and Industrial Conservation; (3) Lighting Design Lab and Support Services.

COMMUNITY CONSERVATION

The Community Conservation Section (Community Conservation) is responsible for providing community and neighborhood energy conservation programs and services which (1) acquire cost-effective conservation resources for the Utility and City, (2) improve the energy efficiency of customer homes, (3) assist customers in understanding and managing their own resource use, and (4) foster energy-efficient practices in operating and maintaining homes and home-based equipment.

Key Themes

The changing environment described in Section 1 has placed greater emphasis on the cost effectiveness of the resource, and has placed greater premiums on understanding what our customers want and need in the form of energy services. In designing programs to carry out the responsibilities described in the *EMSP*, Community Conservation made special efforts to improve the cost effectiveness and delivery of its conservation programs, to reflect the desires of its customers, and to build upon its existing strengths.

- Improved Cost Effectiveness In Resource Acquisition.** To address cost effectiveness concerns and the slowdown of the Utility’s conservation resource acquisition activities, several programs have been redesigned, and some programs have modified incentives and goals. Some of the major changes are as follows: in the Warm Home Program, windows have been eliminated due to their high cost, and the customer’s contribution for other measures has been increased. In the Multifamily Targeted Acquisition Program, the loan

period has been reduced from 10 years to six years. In the Low-Income Multifamily Program, building owners will now be asked to cover 20% of the costs of windows, along with paying for any repair costs which may be incurred. In the Water Heater Rebate Program, the rebate amount for each water heater was reduced from \$60 per water heater to \$30.

- **Collaborative Delivery and Neighborhoods.** A central theme in the delivery of conservation and energy services is using partnerships with other City departments to offer a broader array of services more efficiently, and better tailored to customers' needs. For example, the recently completed Fremont Neighborhood Power Project was a pilot conservation partnership between the Fremont community, Seattle's electricity, water, and solid waste utilities, and six other related agencies.
- In the *EMSP*, the Neighborhood Power Project (NPP) will continue to promote comprehensive conservation and resource management within targeted neighborhoods, and will emphasize collaboration between departments to deliver City services in a seamless manner. NPP will support neighborhoods (a stated priority of the Mayor) and will tie into the *Seattle Comprehensive Plan* by delivering our services in conjunction with the Neighborhood Planning Office. In addition, the NPP will support the City's *Environmental Action Agenda* and will assist in sustainable economic development.
- **Market Transformation.** Community Conservation will continue to be a national leader in market transformation activities related to energy-efficient appliances and lighting technologies. This leadership has been most recently demonstrated with The High Efficiency Laundry Metering & Marketing Analysis (THELMA). THELMA is a research and demonstration project for efficient residential clothes washers. The lessons and data gathered from this project are being used in the development of a market transformation program for this technology in 1997.
- Community Conservation will also participate in the LightSaver Program. This market transformation effort is a regional project designed to increase the affordability and availability of high quality compact fluorescent lamps by working directly with manufacturers. The program design and delivery for this unique collaboration negates the need for customer rebates or coupons.
- Also, Community Conservation will continue to participate in Consortium for Energy Efficiency (CEE) sponsored projects. These projects, and our participation, we hope will create a significant market-pull for high-efficiency products available to residential customers in Seattle.
- **Social Equity.** One specific component of equity is the assurance that low-income consumers will not be excluded from the benefits of energy management services. City Light's commitment to low income weatherization assistance remains strong, in spite of the loss of BPA low-income program dollars. In response to fewer available dollars, both DHHS and City Light have agreed to cut low-income funding levels by half in 1996, with no further decreases in 1997-98. Both departments are looking to program efficiency improvements as a means of obtaining goals similar to those before the budget cuts. In 1996, DHHS made significant program changes, i.e., free window installations were eliminated from the 1-4 unit

weatherization program, and multifamily owners were required to cover 20% of the window costs. Further efficiency improvements will be sought for 1997 and beyond. This plan assumes that our energy management services programs must continue to be designed so as to offer low-income customers a reasonable chance to participate and benefit.

Community Conservation plans to offer customers a variety of programs and services designed to be cost effective and to meet customers' needs. Many of these planned activities are continuations of programs that have been offered over the last few years, including market transformation. Additionally, the Section believes that there is significant potential in exploring new opportunities to deliver services and exploring new technologies such as heat pump water heaters. The programs and services planned are listed below:

Retrofit Services

- **Warm Home Program**

This program provides financial incentives to install insulation in electrically heated 1-4 unit dwellings. The incentive provided covers approximately 70% of the measure and installation costs associated with the program. Customers are responsible for paying the remaining 30% directly to the contractor.

This program has been significantly redesigned in 1996. Energy-efficient windows were eliminated from the program and so was a loan offered to assist customers with financing the window installation costs. "Green" audits will be added to the program, which include a review of applicable water and multi-resource conservation options, such as energy-efficient showerhead installations.

- **Multifamily Targeted Acquisition Program**

This program provides a financial incentive to install insulation, windows, and lighting measures in electrically heated multifamily buildings. The incentive covers approximately 50% of the measure and installation costs. The customer may finance the balance with a low-interest loan offered through City Light. Significant changes to this program include a 6-year instead of a 10-year loan, and, as in the Warm Home Program, "green" audits will be performed seeking multi-resource savings.

- **Multifamily Common Area Lighting Program**

A large portion of electric consumption in multifamily complexes is due to lighting found in common areas, i.e., hallways, entry areas, laundry and exterior lights. Under this program an incentive is paid to install efficient lighting fixtures and bulbs in these areas. Changes to the program include eliminating the loan option, distributing energy-efficient showerheads, and allowing contractors to make bids electronically.

Neighborhood Services

- **Neighborhood Power Project**

The Neighborhood Power Project (NPP) is a collaborative effort to deliver energy conservation and multi-resource management services in a targeted Seattle neighborhood. By concentrating activity in a small area, and by reaching out to all members of the community, the NPP's intent is to increase participation in the City resource management programs. Community leaders and representatives are involved in the project's design, delivery, and marketing strategy to ensure that the programs will appeal to customers. The Project emphasizes collaboration between City Departments, thereby supporting a seamless and comprehensive delivery of City services.

- **Smart Business**

This is a neighborhood targeted retrofit program, which targets small commercial and industrial customers. It offers incentives to install energy-efficient lighting products. The program serves small general service customers on Rate Schedule 31, which include grocery stores, retail establishments, office buildings, small manufacturing sites, restaurants and motels. The initial pilot program was delivered using consultant and contracted staff, but the full-scale program will be run and delivered by City Light staff to reduce costs.

New Construction Services

- **Super Good Cents Program**

The majority of residential load growth in the City Light service territory is due to the construction of electrically heated multifamily buildings. The Super Good Cents Program provides a financial incentive to contractors to build beyond the energy efficiency standards required by the current building code. City Light captures energy savings immediately upon completion of construction, and avoids a lost opportunity.

Significant changes are being made to this program for 1997-98. To receive financial incentives, developers will be asked to "build green", i.e., incorporate the Seattle Water Department's recommended water sub-metering conservation measure, follow the Solid Waste Utility's recommendations that require on-site recycling during construction, and design both the units and the building for ease of tenant recycling.

Low-Income Services

- **Low Income Electric Program**

This is a weatherization program similar in design to the Warm Home Program, but targeted toward low-income customers. Although City Light provides funding for this program, it is administered by the Department of Housing and Human Services (DHHS).

- **Low Income Multifamily Program**

This weatherization program targets low-income customers living in electrically-heated multifamily dwellings. This program is also funded by City Light, but administered by DHHS. One significant change to this program is that the building owner will be required to provide at least 20% of the cost of energy-efficient windows. Also, building owners will pay the entire cost of repairs related to weatherization needs.

Appliance & Lighting Services

- **Energy Efficient Water Heater Rebate Program**

Customers purchasing and installing electric water heaters with higher efficiencies than federal standards can take advantage of this incentive program. All customers' retrofit situations and multifamily new construction are eligible. In 1996, the incentive was reduced from \$60 per water heater to \$30.

- **LightSaver Program**

This incentive program is designed to maximize the Utility's investment in compact fluorescent lamp technology. A five dollar incentive is paid to manufacturers for each approved lamp sold to retailers located within the sponsor's service territory. Traditionally, utility incentives and rebates have been paid to the customer making the purchase. However, this approach does not guarantee the lowest possible price to the customer, nor does it necessarily provide a lasting impact on the purchasing habits of retail establishments. Paying the incentive to manufacturers is intended to have a greater impact on the final retail cost, and will change retail stocking patterns more than a rebate paid to customers would.

- **Cleaner NW**

This education and incentive program is operated in collaboration with Seattle Water, the Bonneville Power Administration, and other Northwest utilities to promote high-efficiency residential clothes washers. The education component of the program will focus on raising consumer awareness of the benefits associated with these washers, and the incentive component will encourage customers to purchase these somewhat more expensive appliances.

- **New Appliance Program**

As a pilot market transformation activity, the Community Conservation Section anticipates offering incentives to promote energy-efficient technologies that have significant energy savings potential. National research has been dedicated to efficient refrigerators, freezers, laundry systems, and heat pump water heaters, but the market development has not matured to the point where energy-efficient products are readily available to residential customers. An incentive program to promote the sale of these appliances is scheduled to begin in 1998. Because of uncertainties with these new technologies, the Community Conservation Section will wait until mid-1997 to select the product which will offer the greatest potential for success.

Other Services

- **Energy Management Services Conservation Hotline (684-3800)**

The Hotline was initiated in 1981 as the intake and referral system for the original residential weatherization program. Since then, the Hotline has expanded to become the central intake, referral, and information disseminating point for residential conservation programs. This one-stop service provides the only source of comprehensive energy and conservation program information for customers.

- **Combined Utility**

The Combined Utilities Project is designed to conserve resources in an efficient, cost effective manner and to deliver excellent service to all customers. For example, City Light, Water, Solid Waste, DCLU, and DHHS are working together to build homes that are more resource efficient. These dwellings save energy and water while increasing the opportunity to recycle construction waste and to use recycled building materials. The focus of this activity is to provide the most current information through demonstrations, classes, and workshops.

Value-Added Services

City Light staff have developed considerable market intelligence on customer attitudes and values related to conservation and energy services. These insights were gained through:

4. Focus groups conducted in 1995 and 1996 for single family homeowners; apartment building owners, tenants, building developers, and architects for multifamily projects.
5. Interviews conducted with several owners and property managers of large apartment buildings.

Below is a summary of some of the key findings from this market research:

- Customers continue to value the benefits they receive from energy services and efficiency.
- Incentives are needed to induce customers to make significant capital investments and to participate in programs.
- Customers need relevant, reliable, and understandable information to make informed decisions regarding their energy use. The utility bill provides some useful information and most residential customers feel that comparing the amount of energy used during the current billing period to energy used during the same period of the previous year is valuable. Of more value would be an indication of how their costs compare with those of other customers. They feel that the comparative figures must be relevant to their own square footage and size of household.

- Reliable information services are important and customers have a very favorable opinion about the technical ability of City Light energy conservation staff. The staff is seen as an unbiased and trusted provider of information.
- Customers expect SCL to inform and educate the public about energy-efficient products, especially new products that become available. City Light should provide good information about the most efficient appliance models and the reasons why these models are being recommended.
- A display center where energy-efficient products could be demonstrated received a moderate level of interest from single-family homeowners. Those in favor of a demonstration center felt there was no such resource currently available. In addition to learning about new products, the main advantage of such a demonstration center would be to learn about potential long-term energy savings that could result from using the most efficient products.

These findings will help shape the policies which will guide City Light's community conservation and energy service programs in the near future. Using these findings, the Section has identified some additional programs or services that may be promising. The details of these efforts have not been fully developed, but the Section has allocated resources to cover the necessary market research, design, and implementation costs.

- **Information Services.** The intent of this service is to provide customers with appropriate information in order to make intelligent energy decisions. This could include a new series of brochures and fact sheets. It could also include providing information via the Internet. Another example is the Lighting Design Lab, which helps encourage energy-efficient lighting designs through demonstrations, education, simulation and research.
- **Utility Bill Enhancement.** A number of utilities are providing an enhanced utility bill for their customers. Bill enhancements could take several forms, but all would provide some form of comparative information to give the customer a better measure of their home's performance relative to other customers. For example, the customer's monthly use could be compared with other residences of similar size in the service territory. The Environmental Protection Agency has developed the Energy Star Billing Program which can provide this type of information.
- **Bill Analysis/Bill Disaggregation.** This service would provide customers with information on how and when they use energy. The goal of providing this information would be to give the customer a better understanding of their energy usage, and hence allow them to use their electricity more efficiently. As part of this service, the utility could take the idea of bill enhancement even further, and disaggregate the customer's bill down to the specific end-use level. This type of bill would split the energy consumption into the various end-uses within the home. A customer could then see how much energy was being used by heating, lighting, refrigeration, water heating, and other appliances.

- **Green Audit.** This service would build upon the Warm Home Program’s “green” audits by providing a much more comprehensive resource efficiency walk-through of a customer’s home.
- **End-Use Metering Service.** Some utilities offer their residential customers end-use metering as a way to identify where improvements in plug load can be accomplished. Simple meters are used to measure the energy consumption of a refrigerator or other appliance. This can help identify energy saving opportunities and, potentially, maintenance problems.

1997-2002 Community Conservation Budget

The total budget for Community Conservation will be approximately \$8.8 million in 1997, and \$8.9 million in 1998, achieving approximately 1.5 aMW in 1997, and 1.4 aMW in 1998. Staff resources required to support this level of effort in 1997 and 1998 are approximately 23.5 FTEs. The budget for 1997-2002 is detailed on the following page.

COMMUNITY CONSERVATION

Program	1997		1998		1999	
	aMW	Budget	aMW	Budget	aMW	Budget
RETROFIT						
MF	0.29	\$ 2,015,352	0.29	\$ 1,996,201	0.29	\$ 2,111,711
MF-CAL	0.32	\$ 909,637	0.32	\$ 912,158	0.32	\$ 1,004,722
Warm Home	0.12	\$ 1,149,368	0.12	\$ 1,157,380	0.12	\$ 1,261,246
NEIGHBORHOOD						
Neighbor		\$ 135,123		\$ 137,623		\$ 146,527
Smart Business	0.07	\$ 110,010	0.09	\$ 137,007	0.09	\$ 142,236
NEW CONSTRUCTION						
SGC	0.25	\$ 1,276,029	0.25	\$ 1,272,100	0.25	\$ 1,416,154
LOW INCOME						
LIEP	0.05	\$ 800,566	0.05	\$ 801,202	0.05	\$ 901,314
LI-MF	0.14	\$ 1,205,462	0.14	\$ 1,206,015	0.14	\$ 1,360,812
APPLIANCE & LIGHTING						
EEWHRP	0.15	\$ 277,404	0.15	\$ 279,821	0.15	\$ 291,667
LightSaver	{.23}	\$ 151,474	{.34}	\$ 168,056	{.56}	\$ 207,915
CLEANER NW	{.03}	\$ 212,427	{.09}	\$ 188,980	{.13}	\$ 177,789
New Appliance		\$ 9,378	0.04	\$ 113,761	0.08	\$ 197,207
OTHER						
Info Serv (X3800)		\$ 107,345		\$ 111,046		\$ 114,748
Comb Utility		\$ 92,754		\$ 95,071		\$ 99,101
Administrative		\$ 306,945		\$ 315,275		\$ 333,311
TOTAL	1.39 {1.65}	\$ 8,759,274	1.45 {1.89}	\$ 8,891,696	1.49 {2.19}	\$ 9,766,460

Program	2000		2001		2002	
	aMW	Budget	aMW	Budget	aMW	Budget
RETROFIT						
MF	0.29	\$ 2,164,623	0.29	\$ 1,838,663	0.29	\$ 2,290,014
MF-CAL	0.32	\$ 1,030,694	0.32	\$ 1,065,077	0.32	\$ 1,099,893
Warm Home	0.12	\$ 1,293,629	0.12	\$ 1,369,946	0.12	\$ 1,406,837
NEIGHBORHOOD						
Neighbor		\$ 150,417		\$ 155,604		\$ 160,791
Smart Business	0.09	\$ 146,013	0.09	\$ 151,049	0.10	\$ 156,084
NEW CONSTRUCTION						
SGC	0.25	\$ 1,453,317	0.25	\$ 1,502,716	0.25	\$ 1,552,384
LOW INCOME						
LIEP	0.05	\$ 925,306	0.05	\$ 957,129	0.05	\$ 988,969
LI-MF	0.14	\$ 1,396,939	0.14	\$ 1,445,111	0.14	\$ 1,493,281
APPLIANCE & LIGHTING						
EEWHRP	0.15	\$ 295,020				
LightSaver	{.46}	\$ 211,351	{.35}	\$ 200,931	{.24}	\$ 190,514
CLEANER NW	{.18}	\$ 147,473				
New Appliance	0.12	\$ 278,194	0.16	\$ 454,841	0.20	\$ 539,336
OTHER						
Info Serv (X3800)		\$ 97,907		\$ 100,368		\$ 104,569
Comb Utility		\$ 101,733		\$ 105,241		\$ 108,750
Administrative		\$ 342,160		\$ 365,627		\$ 377,817
TOTAL	1.53 {2.18}	\$ 10,034,776	1.42 {1.78}	\$ 9,712,303	1.47 {1.71}	\$ 10,469,239

{XX} indicates aMW savings from market transformation activities
Budgets reflect labor loading and A & G loading

COMMERCIAL AND INDUSTRIAL CONSERVATION

The Commercial and Industrial (C/I) Section is responsible for serving the Utility's commercial and industrial customers with services that improve their energy efficiency. In many cases, energy-efficiency improvements also contribute to business profitability and plant productivity.

To meet various customers' needs, the C/I programs are designed to:

- **Acquire a cost-effective resource for the Utility by helping customers conserve electricity.** Provide incentives to encourage the energy-efficient design of buildings or industrial processes, and to encourage the installation of energy-efficient equipment.
- **Provide customers with information.** Show customers how they spend their energy dollar and help them understand their energy use and efficiency opportunities. Inform them of best available energy-efficient practices in operating and maintaining their buildings, plants, or equipment as well as in purchasing and replacing their equipment.
- **Provide customers with technical assistance.** Improve their technical skills and trouble-shooting techniques to help them operate their buildings and equipment safely, productively, efficiently, and smoothly.

Deregulation and increased competition in the utility industry make it more important than ever that City Light listen to its customers, and offer them services they value that respond to their business needs. As indicated above, that importance is heightened as potential competitors are already actively engaged with a handful of City Light customers in offering and delivering energy management services.

Over the past year, the C/I Section made special efforts to listen to its customers through both traditional and new channels. To focus this planning process, the C/I Section began by asking its field staff what they were hearing from customers. In addition, information was gathered on new service options being developed by other utilities. Finally, 23 potential service options were identified, and compared to the Section's core competencies. These 23 options were screened down to 13 commercial services and seven industrial services that were researched in 1995 with customers via seven different Commercial and Industrial market research efforts, as follow:

1. The **Commercial Market Intelligence Survey** questioned 28 mostly large and medium-large commercial firms to assess their interest in 13 commercial service concepts.
2. The **Industrial Process Evaluation** surveyed 21 customers who had previously participated in our Energy Savings Plan (incentives) program, as well as 27 who had not, and included questions on the industrial service options.
3. In the **Medium Commercial Market Intelligence Survey**, 43 customers in six focus groups were queried to understand the needs of medium-sized commercial customers and test the commercial service concepts.

4. The **Industrial Customer Firmographics Pilot Project** hired a firmographics consultant to listen to eight of our largest customers in structured interviews, add information from other sources, and develop profiles of their business needs and decision-making structures.
5. The **Quality Assurance Services** developers conducted four focus groups involving 10 representatives of commercial customers and 10 trade allies to guide the development of Energy Accounting, Building Commissioning, and Operation and Maintenance Services.
6. The ongoing **Customer Satisfaction Survey** assesses the satisfaction of customers with their completed commercial incentive projects. This year's surveys included questions asked of 48 of 59 respondents to assess interest in three of the commercial service options being researched.
7. C/I completed a **Commercial Trade Ally Survey** with 46 respondents, which included questions on 4 of the commercial service options.

One focus of these multiple efforts was to assess the value to customers of the proposed service options and to understand why customers do or do not value particular services. What was heard can be summarized as follows:

- There is a market for each service researched.
- Customers support having the Utility be a provider of these services.
- Customers trust EMSD staff; they value a “second pair of eyes”.
- Customers will share costs for services which they deem valuable.
- Quality, price, suitability, and comprehensiveness are key to the success of these service offerings.
- Customers need financial incentives to address barriers of long payback, high initial costs, and lack of capital.

The C/I Section also heard from its customers about some challenges it faces, and it has designed its services and delivery role to address and overcome these concerns by focusing on its core competencies and appropriate partnering with the private sector. Challenges noted were:

- Some customers believed they are already “doing it”, in the case of some services.
- Some customers held negative perceptions about the public sector's ability to provide the operating flexibility needed to mount and market an array of quality, company-specific services.
- Some trade allies felt the Utility should be careful to avoid introducing competitive bias in its use of outside experts.

Based on what was heard from its customers, the C/I Section is advised to continue the provision of its highly-valued incentive services. In addition, from listening to customers' expressed needs and preferences for utility services, the C/I Section has begun to identify, unbundle, and market test as stand-alone services various pieces of our service mix which were not previously formalized as separate services. From the results of the research, the C/I Section selected the eight most highly rated services plus loan financing (a total of nine value-added services) for additional development. As the C/I Section moves forward with these as well as with its incentive services, a number of evolutionary directions are being supported, as follows:

- **Direct customer service:** During recent years of high levels of BPA funding, the C/I Section magnified its staff's production of contracted commercial energy savings projects by relying heavily on trade allies to market financial incentives with their customers. With lower incentive budgets and increased customer service expectations, the C/I field staff will devote less time to processing incentive projects brought in by trade allies, and more time to developing long-term customer relationships and the provision of services, both incentive and non-incentive, directly to Utility customers.
- **Seamless service offering:** In keeping with the desire to keep our program offerings seamless to the customer, most of these services will be delivered, with appropriate modifications, to either the industrial or the commercial customer. Boundaries between programs and services are useful to us but should remain invisible to the customer.
- **Services may stand alone or be integrated:** In the past, service provision was expected to be directly tied to and supportive of the identification and delivery of an incentive project that would deliver kWh savings. Now, in response to what was heard from its customers, the C/I Section has separately identified eight value-added services. The goal of these services is still to leverage a project or behavior which results in kWh savings. But because of their value to customers, these services can be flexibly delivered either as a stand-alone service, as one point in the customer service cycle, or as an integral part of the delivery of an incentive project.
- **City Light collaboration:** The C/I Section is increasing its coordination with, and support of, others within the Utility who are similarly engaged in providing service to customers. These internal customers include the Account Executives and Major Accounts Representatives, among others. C/I is teaming with others in the Utility to serve its customers better. The C/I Section is also sharing within the Utility the tools and information it has developed.
- **Multiple resource benefits:** The scope of C/I activities often includes the multiple resource benefits of energy efficiency projects (e.g., reduced use of water, other fuels). The C/I Section coordinates with other City Departments (Water, Wastewater, and Solid Waste) in the delivery of many of its services. The C/I Section is working to expand this coordination over time to capitalize on delivery efficiencies for the City as well as to provide customers with the comprehensive view of resource efficiency that can help them improve their efficiency and bottom line.
- **Partnering with large customers:** Efforts continue to develop Partnership Agreements with very large customers under which City Light and the customer negotiate a

comprehensive plan to deliver the customer's full conservation potential over a period of time.

Incentive Services

The market research reaffirmed that C/I customers highly value the financial assistance our incentive services give them to leverage their investments in energy efficiency. The incentive services currently offered to commercial and industrial customers are listed below:

- **Energy Smart Design Program**

The Energy Smart Design (ESD) Program provides financial incentives for installing conservation measures and for conducting energy studies in both new and existing commercial buildings, and for non-process modifications in industrial facilities. The incentive services offered under ESD have been evaluated, modified, and streamlined since the program's inception in 1991. The current offerings are:

Lighting incentives: Installation funding is provided for a range of energy-efficient lighting technologies including electronic ballasts, energy-efficient fluorescent lighting, and lighting controls.

Standard HVAC incentives: Standard HVAC incentives provide installation funding for the most common types of heating, air conditioning, and ventilating equipment: chillers, heat pumps, air conditioners, and variable speed drives for fans.

Custom incentives: Custom incentives provide installation funding for more complex and/or less common energy-efficient equipment. Equipment funded through custom incentives includes refrigeration, building envelope improvements, energy management control systems, and heat recovery.

Design assistance incentives: Design assistance incentives provide financial assistance to building owners for designing conservation measures to increase the energy-efficiency of new and remodeled commercial buildings. Many Design Assistance projects utilize installation funding to partially offset the cost of installing energy-efficient equipment.

- **Energy Savings Plan Program**

The Energy Savings Plan (ESP) Program pays incentives for energy conservation measures which improve process and equipment efficiency in manufacturing, processing, and refining industries. Currently, Seattle City Light offers two incentive services to industrial customers under ESP:

Industrial custom incentives: Industrial custom incentives provide installation funding for equipment which increases the efficiency of industrial processes. The energy savings estimate is verified for each project by comparing electricity usage before and after equipment installation.

Energy studies: ESP provides financial assistance for energy studies which identify and evaluate industrial energy efficiency opportunities.

- **Cooperative Motor Rebate Program:**

This is a point-of-sale motor rebate program offered in the Puget Sound region in conjunction with Puget Power, Tacoma City Light, and BPA. Both commercial and industrial motors are eligible for rebates towards the purchase of energy-efficient motors.

Value-Added Services

Value-added services add value from the customer's perspective, thereby improving the customer's perception of the value of doing business with City Light. The value-added services listed in this section play a key role in serving the basic needs of our customers to understand and control their bills, and to use our product wisely, while simultaneously helping to leverage customer investments in energy efficiency.

From the utility's perspective, these services are essential, integrated pieces of our existing and evolving business process, pieces which are used to leverage the conservation resource. Now, where specified services have been identified as having high value to our customers, these services are being differentiated and formalized for potential offering as stand-alone services, and will be market tested with our customers as both integrated and stand-alone services during 1997 and 1998. Depending on the results of the market testing of the basic service packages, advanced versions of some of these services may, in the future, be provided in a fee-for-service mode. The Lighting Design Lab also fits in this category, providing technical and design assistance on energy-efficient lighting for architects and builders.

For 1997-98, eight value-added services, plus loans, are being developed to a level sophisticated enough either to stand by themselves on a menu of services or to leverage and support the delivery process designed to acquire the conservation resource. These nine services can be classified as information, technical support, or financial support, as follows:

- **Information Services:** Energy Use Analysis, Customer Focused Audits, Technical Information.
- **Technical Support Services:** Design Assistance Services, Commissioning Services, Operation and Maintenance Services, Compressed Air Systems Review, Motor and Drive Systems Review.
- **Financial Support Services:** Loan Financing.

Customers today expect utilities to stretch beyond their traditional "one-size-fits-all" programs and bring services to individual customers that reflect their individual needs and choices. Customers will not necessarily need or select all of the services, but they will utilize the ones that most meet their particular business needs, or reduce their most important barriers to greater energy efficiency. The value-added services described below have been selected to meet this desire for tailored services, and also because of the high degree of importance placed upon them by customers.

It should be noted that the Utility will sometimes require private sector assistance or specialized expertise to carry out its role. For example, customer focused audits and delivery of services

involving industrial processes and technologies will often require the assistance of private sector specialists, especially when dealing with large, complex facilities or one-of-a-kind processes or when the program is improving the level or quality of service provided.

- **Information Services**

Energy Use Analysis: Energy accounting and monitoring services provide customers with information on how they spend their energy dollars, and on their facilities' energy use performance. This information allows customers to modify their consumption by improving operations and maintenance, changing equipment usage patterns, and considering other efficiency improvements.

Customer focused audits: Customer-focused audits assess a customer's business needs and then help the customer identify energy-efficient projects which can also generate other business benefits, i.e., increased productivity, greater customer satisfaction, lower operating costs, etc. These audits can focus on electric efficiency only, other electricity related services (e.g., power quality), multi-resource opportunities (e.g., other energy fuels, water, or solid waste), or non-energy-related benefits (environmental or productivity improvement).

Technical information: City Light would help customers obtain and evaluate information about industrial processes and technologies. This could include reports about the productivity gains other companies in their industry have achieved through technology improvements. City Light would share its own body of information or would help customers select recognized sources of expertise in their industry or in specific end-use technologies.

- **Technical Support Services**

Design assistance services: City Light would help customers in designing and specifying energy-efficient and cost-effective buildings and equipment for new construction and major remodels. This service augments Design Assistance incentives. City Light would increase awareness of efficient building design benefits, provide technical training, and provide technical assistance with activities such as design meetings and contract development.

Commissioning services: Commissioning is a systematic process for ensuring that a facility (or energy system) performs in accordance with its design intent and the owner's operational needs. Commissioning, as defined here, is conducted on newly installed equipment and/or systems (installed within the last 9 months). Commissioning services may include an energy systems review, installation verification, commissioning planning, commissioning specifications, and functional performance testing. They may also include the review or development of: operator training requirements, warranties, and building operation strategies.

Operation and maintenance services for energy efficiency: Standard operation and maintenance (O&M) practices tend to focus almost exclusively on keeping equipment running. Operating efficiency is rarely a consideration and many service contractors and customer O&M staff members lack both the skills and the equipment to measure or maximize operating efficiencies. O&M services help a customer optimize the operation of existing equipment so that energy efficiency is increased, operating costs are reduced, building comfort is increased and equipment life is extended. Activities could include an energy systems survey, O&M plan assessment, O&M plan development, initial and ongoing O&M plan implementation support, operator

training and referral and deficiency correction assistance. This service would complement existing O&M activities by focusing on energy efficiency.

Compressed air systems review: City Light would provide a comprehensive review of the efficiency of the customer's compressed air systems. For the most complex systems, the review would be conducted by a recognized expert in this field. The outcome would be recommendations for cost-effective equipment changes or operations and maintenance measures. The customer's air plant staff may also receive technical assistance by hands-on demonstration and training.

Motor and drive power systems review: City Light would provide a comprehensive review of the customer's motor and drive power systems. For the most complex systems, the review would be conducted by a recognized expert in this field. The outcome would be recommendations for cost-effective equipment changes and operations and maintenance measures.

- **Financial Support Services**

Loan Financing: A utility loan program in which City Light would provide financing for energy-efficiency projects at attractive interest rates and payments would be structured to match the expected energy savings from the project.

1997-2002 Commercial/Industrial Budget

The total budget for the Commercial and Industrial Section will be \$10.3 million in 1997 and \$10.3 million plus \$0.6 million for loans in 1998, achieving 4.6 aMW savings each year. Staff resources required to support this level of effort in 1997 and 1998 is 33 FTEs. Figure 5 shows a program-by-program breakdown of costs and savings.

Figure 5. Commercial and Industrial Budget

	1997		1998		1999	
	aMW	Budget	aMW	Budget	aMW	Budget
ESD	3.02	\$ 7,195,303	3.02	\$ 6,767,803	3.02	\$ 8,849,579
ESP	1.60	\$ 3,019,463	1.60	\$ 3,429,006	1.60	\$ 3,730,043
ADMIN		\$ 93,699		\$ 96,030		\$ 99,422
TOTAL	4.62	\$ 10,308,465	4.62	\$ 10,292,839	4.62	\$ 12,679,044

	2000		2001		2002	
	aMW	Budget	aMW	Budget	aMW	Budget
ESD	3.02	\$ 9,400,314	3.02	\$ 9,546,624	3.02	\$ 9,691,910
ESP	1.60	\$ 3,855,698	1.60	\$ 4,031,697	1.60	\$ 4,169,702
ADMIN		\$ 102,061		\$ 105,581		\$ 109,100
TOTAL	4.62	\$ 13,358,073	4.62	\$ 13,683,902	4.62	\$ 13,970,712

These budgets reflect labor loading and A & G loading.

These dollar amounts do not include labor charges for the programmatic costs incurred by Division Support, the Contracts Unit, or the Evaluation Unit.

LIGHTING DESIGN LAB AND SUPPORT SERVICES

Lighting Design Lab

The Lighting Design Lab (The Lab) is a technical assistance center for both residential and commercial customers throughout the Northwest and British Columbia. It is also a regional collaborative project funded in part by the Bonneville Power Administration, Seattle City Light, Snohomish PUD, Tacoma City Light, Puget Power, Washington Water Power, Idaho Power, PacifiCorp and BC Hydro. It has served an average of 6,000 customers per year since late 1989. Forty percent of all annual visitors, or 2,400 customers, are from Seattle City Light.

The mission of the Lab is to encourage lighting specifiers to explore energy efficiency and promote implementation through demonstrations, education, simulation and research. Along with educational services, the Lab provides consultations, mock-ups, tours, videos, a quarterly newsletter and constantly changing state-of-the-art demonstrations. It has developed a reputation for providing high quality, unbiased information.

In 1996 and beyond, the Lab will continue to charge for its educational services. The current funding agreements with sponsors run through 1997. It will be actively looking for utility funding beyond 1997. The Lab will collaborate with the InterLight program on the World Wide Web. The Lab will sign a Memorandum of Understanding with DOE to become a resource center for federal projects. It will continue to work closely with regional organizations such as the AIA, WSEO Building Operator training, and appropriate regional Market Transformation programs.

Support Services

The planning, evaluation, contracts, data processing and administrative tasks that it takes to run an effective, award-winning conservation program often go unrecognized. However, without these support resources, the policy goals underlying this Plan and successful operation of conservation programs and services could not be achieved. Below is a summary of the types of activities which will be undertaken to support the programs and policies reflected in the Energy Management Services Plan.

- **Policy & Planning Unit**

The Policy & Planning Unit (P&P Unit) provides long-range planning and analytical support for EMSD. Aside from facilitating development of the Energy Management Services Plan, unit staff also provide analytic and planning support to EMSD field sections, and participate in Utility-wide planning and decision-making processes such as the Strategic Resource Assessment, the *Business Plan*, and the budget. The P&P Unit is also responsible for researching and analyzing proposed policies and legislation affecting City Light's energy management services, and recommending Utility strategies and responses on such issues. The unit acts as a liaison with such entities as BPA, Northwest Power Planning Council (NWPPC), and the Federal Energy Regulatory Commission.

Two important functions will highlight the P&P Unit's activities in 1997 and beyond. First, the unit will continue to provide staff support for the Comprehensive Regional Review of the

Northwest Energy System. The review's goal is to produce a set of recommendations for how the region should respond to the restructuring of the electric services industry. These recommendations are likely to have far reaching impacts on City Light's provision of energy management services in the future.

Second, the P&P Unit will spearhead the utility's efforts to integrate DSM into transmission & distribution planning. This effort includes planning and implementing a group load management pilot for commercial buildings, scheduled to begin operation in the fourth quarter of 1996, and to be completed in mid-1997. In addition, P&P staff will be involved in developing a long range strategic plan for the downtown distribution network. This plan will identify any feasible DSM options for the downtown corridor. The strategic plan for the downtown network will likely lay the groundwork for a more detailed, integrated T&D study in 1997.

- **Evaluation Unit**

Over time, as conservation has come to be considered a critical resource, expectations have increased for evaluation and accountability. As described earlier, existing programs are being revamped and new program designs will be launched. Program design ideas will be tested with demonstration projects before they become fully optimized. In this environment, there is a pressing need to know promptly which program designs work, and which ones do not. Evaluation studies, and other accountability mechanisms such as the annual Conservation Accomplishments Report, are critical in providing decision-making tools to assure that programs are operating successfully.

Since 1980, City Light has maintained a dedicated Evaluation Unit in the Division to assess program performance, savings and cost effectiveness. The creation of this unit was mandated by City Council Resolution to track conservation progress. Since its inception, the unit has conducted over 60 evaluation studies that have provided data for load forecasting, budget review, strategic planning, and for program managers seeking to streamline and improve program operations. Thus, a base level of evaluation capability already exists that City Light will continue to depend on to measure and determine how well the conservation goals set forth in this plan are met.

The Division's Evaluation Unit has primary responsibility for the measurement and reporting of program performance. In addition to process, impact (energy savings), and cost effectiveness evaluations, the Unit's other primary responsibilities include:

- Annual Energy Conservation Accomplishments Report. The Evaluation Unit will continue to compile the best available data on actual program participation, administrative and incentive costs, measured energy savings, customer bill savings, BPA reimbursements until they are depleted, and performance measurements in this yearly report. This historical framework provides aggregation of performance data in relation to the overall conservation goal, both from currently operating programs and from historical programs that continue to yield savings.
- Annual Division Report. The Evaluation Unit will continue to produce this narrative summary of City Light's conservation activities as a tool to communicate yearly achievements and future directions to policy makers and the general public.

- **Contracts Unit**

The Conservation Contracts Unit (CCU), established in January 1994, is responsible for providing contractual and fiscal accountability and compliance for the City of Seattle's electrical conservation programs. The Unit administers and coordinates all contractual agreements entered into by the Energy Management Services Division on behalf of the City and the Utility in the execution of its conservation program responsibilities.

The CCU is responsible for the preparation and administration of customer contracts for Seattle City Light's conservation programs. This work involves residential customer contracts and contracts with commercial and industrial customers. Authorization of conservation contract work, and contract payment approval (for contractors) is done by CCU staff.

- **Tools: Automated Tracking**

In the original *Conservation Implementation Plan*, the proposal for an automated tracking system was put forward. The need and justification for such a system was based on EMSD's reliance on several inefficient and uncoordinated efforts to track and support the division's activities. A few of the liabilities of that approach included fragmented data among the systems, lack of data consistency, reporting limitations, and the high amount of effort needed to extract and verify data.

Since the adoption of the Plan, a vendor has been selected to provide a software package specifically designed for the automated tracking of DSM programs. In the fall of 1995, the consultants began working with a specially convened Conservation Tracking System (CTS) project team comprised of DP professionals from within EMSD and the Information Technology Division. Tailoring the software to fit SCL programmatic needs will take place during the spring and early summer of 1996. It is anticipated that the system will be operational in late summer or early fall.

The CTS is expected to provide a flexible, comprehensive tracking system for customers, contractors/vendors and their projects. The intent is to provide the full range of CTS users (field, planning, evaluation, administrative and support staff, management and decision makers, etc.) with direct access to one integrated system. Having a single system ensures that all people with access to CTS will be getting consistent customer and project tracking data from one centralized database. Consistent and easily accessible data will lead to better customer service, and improved accounting of utility project costs and savings. Eventually, CTS may become a centralized system utilized not just by EMSD staff, but by other staff in the utility, for tracking and accessing customer records and contacts.

1997-2002 Lighting Design Lab/Support Services Budget

The total budget for Support Services will be approximately \$3.5 million in 1997 and \$3.7 million in 1998. Staff resources required to support this level of effort in 1997 and 1998 is 28 FTEs. The following figure shows a breakdown of costs by section.

Figure 6. Lighting Design Lab/Support Services Budget

	1997 Budget	1998 Budget	1999 Budget
LIGHTING LAB	\$ 674,934	\$ 702,603	\$ 769,391
DIVISION SUPPORT	\$ 1,281,427	\$ 1,379,939	\$ 1,680,342
EVALUATION	\$ 986,742	\$ 999,088	\$ 1,087,876
POLICY & PLANNING	\$ 388,734	\$ 400,210	\$ 418,110
DIRECTOR	\$ 205,407	\$ 210,436	\$ 202,497
TOTAL	\$ 3,537,244	\$ 3,692,276	\$ 4,158,216

	2000 Budget	2001 Budget	2002 Budget
LIGHTING LAB	\$ 789,827	\$ 813,947	\$ 844,183
DIVISION SUPPORT	\$ 1,763,273	\$ 1,743,969	\$ 1,898,913
EVALUATION	\$ 1,116,751	\$ 1,155,260	\$ 1,193,770
POLICY & PLANNING	\$ 429,258	\$ 444,076	\$ 458,911
DIRECTOR	\$ 208,223	\$ 215,538	\$ 222,951
TOTAL	\$ 4,307,332	\$ 4,372,790	\$ 4,618,728

These budgets reflect labor loading and A & G loading. The labor costs to support the Commercial/Industrial and community Conservation programs charged by Division Support, the Contracts Unit, and the Evaluation Unit are incorporated in the dollar amounts reflected above. Therefore, both programmatic and non-programmatic dollars are reflected.

SECTION 4: IMPACTS AND ANALYSIS

City Light staff have examined the impacts of the *EMSP* on several key criteria which were important in the development of the plan. This section presents a summary of that analysis.

ACHIEVING 100 AMW TARGET

Figure 7 presents a comparison of the rate of achieving the 100 aMW goal, under the *EMSP* versus the 1992 *Plan*. In the figure, 1992 *Plan* levels are designated by the “Existing” line, while the *EMSP* goals are shown by the “Redesigned” line. As one can see from the figure, the 100 aMW goal is still reached under the new plan, although it takes a few years longer than projected in the 1992 *Plan*.

**Figure 7. Comparison of Time to Reach 100 AMW Goal:
1992 *Plan* vs. *EMSP***

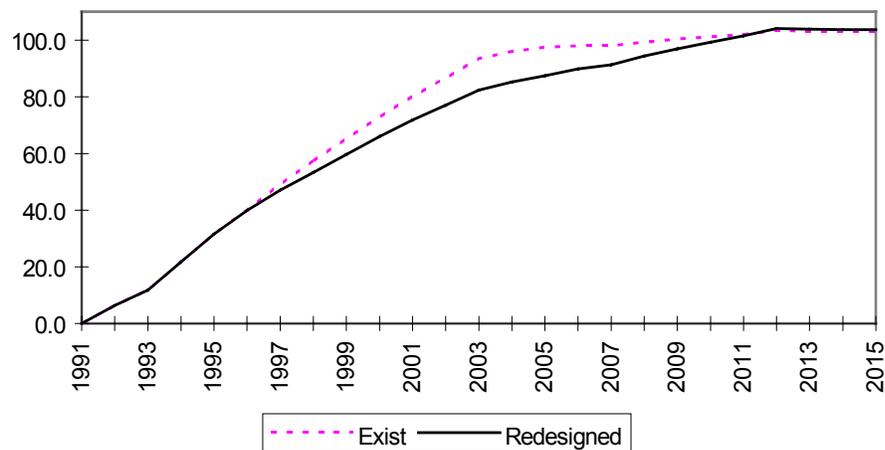
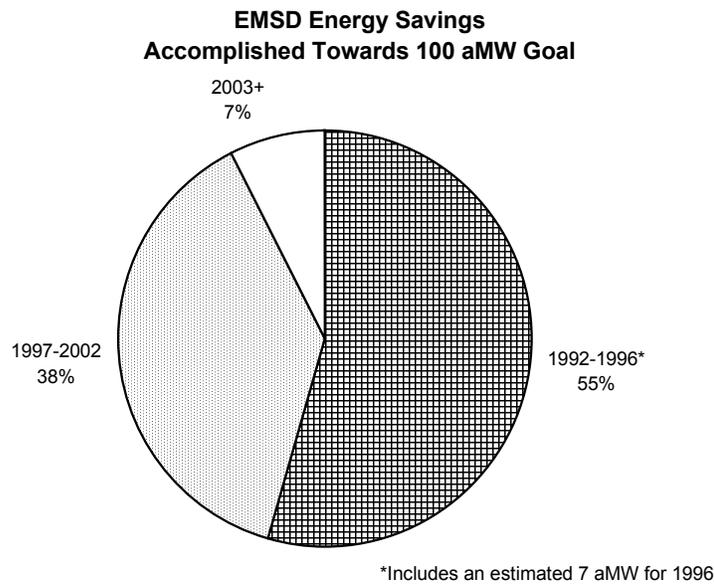


Figure 8 on the next page presents the percentage of the 100 aMW goal City Light staff estimate will be achieved via programs and services reflected in the *EMSP*. As the figure indicates, City Light conservation programs under the *EMSP* will achieve 36% of the overall target during the period 1997-2002, leaving 18% of the original target for the years 2003 and beyond.

Figure 8. Percent Achievement of 100 aMW Goal Under the *EMSP*



PROGRAM COST EFFECTIVENESS

The conservation resource acquisition programs described in Section 3 were analyzed to determine the economic impacts to the service territory. Figure 9 summarizes the findings of this analysis.

As the table indicates, all of City Light’s conservation programs produce positive economic benefits to the service territory. These benefits accrue to the service territory with or without consideration of environmental benefits. The positive economic performance of City Light’s 1997 conservation programs is the result of program design changes identified in Section 3, updated program cost and savings data, and updated MVE projections.

(Note: we have not examined the cost effectiveness of two types of programs: low-income and market transformation. Exempting low-income programs from strict adherence to cost effectiveness criteria recognizes the special costs associated with working in this sector, as well as the societal benefits of providing services to this sector. Market transformation programs could, theoretically, be held to a strict cost effectiveness test, but only if the analysis can effectively capture the long-term savings accruing if and when the market is effectively transformed. We are not presently able to fully quantify those effects.)

Figure 9. Comparative Net Benefits per MWh of Redesigned Conservation Programs (1996\$/MWh)

PROGRAMS	Levelized Net Benefit (to Society/Service Area)	
	Without Externalities	With Externalities
Community Conservation		
Long-term Super Good Cents (LTSGC) Incentives and technical assistance. for new construction (mostly multifamily).	1.6	12.5
Water Heater Rebate (EEWHRP) Incentives for the purchase of energy efficient electric water heaters.	3.9	23.7
Warm Home Incentives for owners to install insulation in single family homes.	19.7	33.8
Multifamily Targeted Acquisition Program (MFTAP) INCENTIVES AND LOANS FOR INSTALLATION OF EFFICIENT WINDOWS, INSULATION, AND LIGHTING IN MF BLDGS.	2.0	11.5
Multifamily Common Area Lighting (MF CAL) INCENTIVES TO INSTALL ENERGY EFFICIENT LIGHTING IN COMMON AREAS, I.E., HALLWAYS, OF MF BLDGS.	13.9	27.8
Commercial/Industrial		
Energy Smart Design (ESD) Incentives for new and retrofit lighting systems, air cond. and other efficiency measures in com'l bldgs.	7.4	18.0
Energy Savings Plan (ESP) Financial assistance for manufacturing and industrial process improvements	10.9	23.9

RATES, BILLS, ENVIRONMENTAL COSTS AND DEBT

For the *EMSP*, the “slowdown” option was compared to two other conservation options: (1) acquiring conservation at levels projected under the *1992 Plan*, and (2) eliminating conservation programs in 1997. The objective of the analysis was to determine the impacts on the five evaluation criteria listed below.

8. Rates: Levelized cost of one KWh at SCL average rates over 5 years.
9. Bills: Levelized value of revenue requirements over the next 5 years.
10. Debt: Debt service as a percentage of revenue requirements.
11. Environmental Costs: Levelized value of environmental costs over the next 5 years.
12. Reliability: Levelized value of expected involuntary interruptions of load.

Figure 10 shows the impacts of the *EMSP*. Compared to the *1992 Plan*, average real rates under the *EMSP* will be 0.5% lower over the next five years, while average bills over the same period will be 0.2% higher. Environmental cost will be 4% higher than they would be under the *1992 Plan*. Debt requirements will be marginally lower than those required by the *1992 Plan*. There is no significant change in system reliability.

**Figure 10. Economic Impacts Of *EMSP*
(1996 \$'s)**

OPTIONS	5 year average rate	5 year average bill	5 year environ. costs	debt as % of rev.rqmt (year 2000).	5 year avg load interruptions
<i>EMSP</i>	41.2 mills	\$376 M/yr	\$25 M/yr	21.2%	2,000 kwh/yr
	% change	% change	% change		kwh change
<i>1992 Plan</i>	+0.5%	-0.2%	-4.0%	21.6%	marginal
Stop in '97	-0.8%	+0.3%	+6.0%	20.6%	+800 kwh/yr

If City Light were to stop conservation in 1997 instead of adopting the *EMSP*, we would anticipate a decrease in the average five year real rate of 0.8%, an increase in the five year average bill of 0.3%, and an increase in annual environmental costs of 6%. Debt requirements would be lower because no new conservation would be financed. System reliability would decrease marginally.

CUSTOMER EQUITY

City Light has traditionally designed conservation programs that are cost effective to the service area and to the participating customer. This *EMSP* is no exception to that tradition.

Although program participants may receive economic benefits more immediately, over time, all City Light customers receive benefits from conservation through greater system reliability, and lower bills when compared with the alternative of building alternative power sources such as combustion turbines.

Customers will not receive the same level of benefits from conservation if they do not participate in City Light conservation programs. The *EMSP* addresses this concern by assuring equity in program availability, delivery, and participation. By making energy efficiency programs and services available to all customer segment groups, the impacts on non-participating customers are limited, because few customers will fall into that category.

The issue of equity, however, goes beyond the more narrow perspective taken above. The impacts of energy conservation can be felt at many levels. Specific individuals, specific income groups, institutions and businesses, policy makers in both private and public agencies, even the community as a whole is affected by energy conservation events. Some impacts of energy conservation are direct, others indirect. Some impacts are short-lived; while others might not

even begin to be felt except over the long run. Finally, some impacts are clear and certain; others are contingent or uncertain.

It is difficult at present to measure all of the possible impacts of energy conservation (direct and indirect, short- and long-run, certain and uncertain) on any class of customers. And in the industry as a whole, there is (as yet) no standard way to measure, and therefore compare, all the impacts of energy conservation. Until a methodological approach is developed which is both comprehensive and easy to apply, conservation “equity” will remain a perplexing issue to address.

ECONOMIC DEVELOPMENT EFFECTS OF ENERGY EFFICIENCY

A number of studies over the last decade or so have evaluated the economic development effects of various energy resource choices. These studies, focused primarily on employment effects, have evaluated conservation and a variety of generation options.

One way of looking at economic development effects is to analyze the number of jobs that are created. Job creation can be categorized by four categories: direct, indirect, induced, and re-spending effects.

Direct jobs are those created in the construction and operation of a power plant or in the installation of efficiency measures. A major survey for BPA, the CRA study, indicated that conservation produces 2-3 times more jobs than power plants. Moreover, these are created from within the community itself.

Indirect jobs are jobs created by those businesses who supply material and other inputs to the construction project, e.g., turbine manufacturers, insulation manufacturers. The CRA study concluded that, for power plants, indirect employment was approximately equal to direct employment and that, for conservation, indirect employment equaled about 60% of direct employment.

Induced employment is that created by the spending of wages and salaries earned by the directly and indirectly employed. CRA concluded that, for both generation and conservation, induced employment was approximately twice the total of direct and indirect employment.

Finally, the largest single effect is the “re-spending” effect. This effect results from the fact that cost-effective conservation is cheaper than generation (by definition; that’s what makes it cost-effective). The consumer savings resulting are respent, mostly in the community, and create a substantial number of jobs — jobs that continue for as long as the savings continue.

Using the CRA study, and other sources, M.J. Sullivan of Battelle-Pacific Northwest Laboratory (“Conservation and Economic Development”) developed some generic estimates of total employment effects of conservation programs and a comparably scaled coal plant. Those estimates suggest a net employment benefit ranging from 64-196 job-years per megawatt of conservation developed. Applying these figures to the 36 average megawatts targeted by this plan for the years 1997-2002 would suggest that the conservation option would create 2,300-7,000 more job-years than providing an equivalent amount of power from a new generation plant

Not only have these jobs been created, but they will last longer than jobs associated with power plant design and operation and exist mainly in the community served by City Light.

This analysis demonstrates that City Light's conservation programs have significant economic development impacts. As City Light's conservation efforts have grown and matured over the years, a whole infrastructure has developed to help support these efforts, including a significant group of women and minority-owned business supporting energy efficiency in the 1990's.

SIZE OF SERVICE TERRITORY

Seattle City Light is faced with many uncertainties in the near future. One of these is the size of the Utility's service territory. City Light may receive requests to provide service to customers currently served by other electric utilities. A similar situation may arise where a political jurisdiction is split between City Light and another electric utility. Additionally, City Light might choose to serve only those customers within the Seattle city limits.

The Energy Management Services Division currently provides programs and services to all customers within the service territory regardless of where these customers are located. This has been our policy since first offering our customers energy management services. This Plan does not address the potential outcomes that might result from future decisions regarding the size of the service territory. Utility decisions which significantly impact the size or customer make-up of the service territory would require us to revisit and possibly revise this Plan.

COMPREHENSIVE REGIONAL REVIEW

This plan is developed in the midst of a regional debate over restructuring of BPA and the regional energy system. A formal process to address these issues has been convened by the governors of the four Northwest states. Among the key issues on the table is the future of energy conservation in the region: who will pay for it and who will do it.

Some participants in these debates are eager to believe that we can simply walk away and let "the market" take care of energy efficiency. Others, while conceding that some market intervention is still required to assure the development of cost-effective conservation, are persuaded that utilities cannot and will not assume this role in a more competitive environment.

City Light, along with many public power utilities and public interest groups, is taking a different view of the matter in these regional discussions. Our analysis (see Section 2 for further discussion) indicates that market forces will lead to the development of only a very small portion of the available cost-effective conservation. We do not believe that consumers in general — and City Light's customers and community, in particular — are prepared to see utilities walk away from responsibility for encouraging and assisting in the efficient use of energy. If that is the price of a more competitive utility industry, the price may be too high to pay.

The *EMSP* is relevant in these discussions in that it demonstrates that City Light is "walking its talk" locally. It is also an effective presentation of one utility's view of how to adapt conservation to the new environment.

The eventual outcome of these talks could have repercussions for City Light’s local conservation activities in several respects. These include:

1. This plan assumes that, for at least the next 5-6 years, BPA will continue to provide significant funding for regional “market transformation” programs. BPA has committed to putting up \$15 million per year, through 2001, for these purposes, with the expectation that the region’s investor-owned utilities will match that sum. A withdrawal by BPA from these commitments (unless a successor entity and mechanism were designated) would leave a financial hole in the *EMSP*. It is difficult to estimate the exact size of this hole, since most of the market transformation programs are still in the conceptual stage. The amount of activity that would be funded in City Light’s service territory is not totally clear.
2. Some parties, including the private utilities and the Northwest Conservation Act Coalition, have proposed that all of the region’s utilities apply a “system benefits charge” at the local distribution level to raise money for conservation. These moneys however, would not be spent and controlled locally, but would be sent to a new regional entity which would accept bids for those funds from almost any entity (e.g., utilities, energy service companies, state governments, individual customers).
3. Implementation of these proposals would seriously affect Seattle’s ability to define and control it’s own conservation strategy. Even if the Utility were frequently a successful bidder for regional funds, our ability to project and plan would be hampered, if not crippled.
4. Any decision to basically “leave it to the market,” has the potential to place Seattle at a competitive disadvantage. We say this assuming that, even in the face of such a regional irresponsibility, Seattle would continue to make some noticeable investment in conservation, but we would be competing against suppliers who included nothing for conservation in their costs. As indicated above, the rate impacts of our proposed activities are modest, but they are not invisible and it is unclear whether these costs are enough to make the difference in a customer’s choice of supplier.

All of these effects are frustratingly, but unavoidably, speculative at this point. The regional process is in its early stages and it is difficult, and probably imprudent, to make hard predictions about its outcome. The two things we can say are these:

- The *EMSP* is a useful tool for City Light in these regional discussions both, as discussed above, as visible evidence of our sincerity and as a model of how to do conservation in the new world.
- Radical outcomes (e.g., “leave it to the market” or a system benefits charge controlled by a central entity) would require us to revisit and possibly revise this plan.

SUMMARY

Analysis for the *EMSP* indicates that the 100 aMW target is still viable. Under this plan, however, the goal will be reached at a point later than projected in the *1992 Plan*. By 2003, instead of achieving 100 aMW, the *EMSP* program levels will achieve approximately 84 aMW.

Redesign and efficiency improvements, updated cost and savings data, and changing MVEs have led to all EMSD programs producing positive economic benefits to the service territory, with or without environmental externalities.

Compared to the *1992 Plan*, the *EMSP* will have less impact on average rates and debt requirements. Average bills and environmental costs will be slightly higher, due to the reduction in conservation achievements.

In addition, analysis has shown that City Light conservation efforts have significant economic development effects through creation of jobs. The jobs created to support the industry have included a number of women and minority-owned businesses, which addresses the City goal of supporting such businesses.

The *EMSP* does not address the potential outcomes that might result from future decisions regarding the size of the service territory. Utility decisions which significantly impact the size or customer make-up of the service territory would require us to revisit and possibly revise this Plan.

The *EMSP* is developed in the midst of a debate over restructuring of BPA and the regional energy system. A formal process to address these issues has been convened by the governors of the four Northwest states. Among the key issues on the table is the future of energy conservation in the region: who will pay for it and who will do it. The *EMSP* is a useful tool for City Light in these regional discussions as visible evidence of our sincerity and as a model of how to do conservation in the new world. Radical outcomes (e.g., “leave it to the market” or a system benefits charge controlled by a central entity) would require us to revisit and possibly revise this plan.

CONCLUSION

The passage of EPAAct has led to almost full-scale competition in the wholesale power markets, and the first signs of competition in the retail energy services market are evident nationally, as well as in City Light's own service territory. BPA conservation funding has dried up, and marginal values of energy are lower than in 1992. Environmental concerns are increasing. Faced with these very diverse conditions, City Light has reviewed the policies, strategies, and program offerings laid out in the 1992 *Conservation Implementation Plan*.

Review of the 1992 *Plan* leads to the reaffirmation that conservation is still City Light's preferred resource of choice because it reflects our public values, and furthers commitment to the environment and sustainable resource management. City Light should continue to pursue the 100 average MW target from the 1992 *Plan*, but at a slower pace of 6 average MW per year. At the same time, the Energy Management Services Division will need to change a number of programs and services which will meet customers' demands in the intensifying competitive energy services marketplace.

To guide City Light's energy management actions for the next five years, four major policies are set forth. These include:

1. Assuring The Development Of All Cost-Effective Conservation In The City Light Service Territory;
2. Providing A Comprehensive Array Of Energy Management Services Including But Not Limited To Energy-Efficiency Services;
3. Promoting City Policies And Community Values While Working With Other City Departments In Delivering Energy Management Services; And
4. Offering Services To All Customer Classes And All Segments Of The Community.

The four guiding policies have led EMSD to offer the programs and services described in Section 3 of this plan. These programs and services have been selected because they best meet the guiding policies, City goals, and the demands of our customers. Where necessary, programs have been redesigned to be make them more efficient and to meet new cost effectiveness requirements. In other cases, services or offerings have been unbundled and new services have been created in order to meet stated customer needs.

Economic analysis of the modified program offerings finds all of them to be cost-effective, with each program providing a positive net present value (NPV) to the service territory. In addition to being cost-effective, the set of programs offered in the *EMSP* are found to lower customer bills and reduce environmental costs.

The *EMSP* will guide Seattle City Light on a course consistent with City goals, customer needs, and environmental stewardship. The policies and strategies, and descendant programs, services, and products outlined in the *EMSP* will provide a resource which is cost-effective and

environmentally friendly, and will keep City Light, and the City of Seattle, in its position of being a national leader in the area of energy efficiency. Equally important, at a time when our customers are beginning to have choice in retail energy services providers, this package of policies, strategies, programs and services will satisfy customer energy service demands while strengthening relationships with our customers.

GLOSSARY

aMW

Average Megawatt. Energy produced by the continuous operation of one megawatt of capacity over a specific period of time, usually one year.

BPA

The Bonneville Power Administration. The federal agency responsible for marketing the power generated from the federally owned and/or operated projects in the Pacific Northwest.

Conservation

Efficiency of energy use, production, transmission, or distribution that yields a decrease in energy consumption while providing the same, or higher, levels of service.

DSM

Demand Side Management. A utility strategy for changing the demand for electricity while still meeting customer needs through programs that encourage customers to use energy more efficiently.

EMSD

Energy Management Services Division.

EMSP

Energy Management Services Plan (1996).

Environmental Externalities or Adders

Any costs or benefits not accounted for in the price of goods or services. Specifically, the term given to the effects of pollution and other environmental impacts from power plants or energy conservation measures.

kW

Kilowatt. The electrical unit of power equal to 1,000 watts. For example, a typical electric hair dryer is rated at 1,500 watts or 1.5 kW.

kWh

Kilowatt-hour. A basic unit of electrical energy equal to one kW of power applied for one hour; this is the standard unit of measuring energy consumption for billing purposes. The 1,500 watt hair dryer operated for an hour = 1.5 kWh.

Load Growth

The increase in demand for electric power that occurs over time as new customers move into an area and new uses for electricity are adopted.

Load Management

A strategy that attempts to reduce power consumed at certain periods of time. This usually occurs when an electric utility is approaching their system peak.

NPV

Net Present Value. The difference between the present value of all discounted benefits and costs over the life cycle of a resource.

Renewable Resource

A resource that uses solar, wind, water (hydro), geothermal, biomass or similar sources of energy, and is used either for electric power generation or for reducing the electric power requirements of a customer.

SCL

Seattle City Light.

SRA

Strategic Resources Assessment (Draft, April 1996). Document which assesses the Utility's need for additional energy resources, evaluates energy resource options and policy issues, and recommends policy direction and specific actions to allow SCL to acquire sufficient energy resources to meet anticipated customer demand for electricity.

T & D Savings

Transmission and Distribution savings. By reducing customer energy consumption, the transmission and distribution system delivers less energy and consequently, there is a reduction in the resistance experienced in the system.

1992 Plan

The Conservation Implementation Plan:1993-2003. Published in 1992. Sometimes referred to as the CIP.