V. DISCONTINUED COMMERCIAL – INDUSTRIAL PROGRAMS

BPA COMMERCIAL TANK WRAP PROGRAM

Description

This program was funded by BPA to wrap hot water tanks in commercial buildings. It operated only in 1982 and 1983.

Eligible Population

This program was limited to 1,000 commercial hot water tanks, a small percentage of City Light's commercial customers.

Lifetime of Conservation Measures Installed: 12 years

Electricity Savings

The average customer that participated in the BPA Commercial Tank Wrap Program saves about 500 kilowatt-hours (kWh) per year.

Between 1982 and 1994, the BPA Commercial Tank Wrap Program saved 5,988 megawatt-hours (MWh). However, since the lifetime of these measures has expired, this program did not deliver any savings in 2006.

BPA COMMERCIAL TANK WRAP PROGRAM

ELECTRICITY SAVINGS FOR THE BPA COMMERCIAL TANK WRAP PROGRAM

Year	*Participants by Year*	*Cumulative Participants*	*kWh Savings per Participant*	*MWh Savings in Year* (1)	*Avg. MW Load Reduction in Year*
1982	424	424	500	212	0.024
1983	573	997	500	499	0.057
1984	0	997	500	499	0.057
1985	0	997	500	499	0.057
1986	0	997	500	499	0.057
1987	0	997	500	499	0.057
1988	0	997	500	499	0.057
1989	0	997	500	499	0.057
1990	0	997	500	499	0.057
1991	0	997	500	499	0.057
1992	0	997	500	499	0.057
1993	0	997	500	499	0.057
1994	0	997	500	287	0.033
1995-2006	0	997	500	0	0.000
Electricity Savings Since Start of Program:				**5,988**	**MWh**

Program Expenditures

The program expenditures during 1982 and 1983 totaled $65,344. This program was totally funded by the BPA.

PROGRAM EXPENDITURES AND BPA FUNDING FOR THE BPA COMMERCIAL TANK WRAP PROGRAM

Year	*Expenditures/ Funding* (2)
1982	$16,336
1983	49,008
1984-2006	0
TOTAL	**$65,344**

BPA COMMERCIAL TANK WRAP PROGRAM

Notes

1. Electricity savings figures are from the *Evaluation of the Commercial Efficiency Standards* (1985). After 1983 the program was discontinued, so the later savings shown represent continuing savings from earlier program participants. First year energy savings from new participants completing work in each year were: 212 MWh (1982); and 287 MWh (1983).

2. The 1982 and 1983 expenditures are from the BPA Short-Term Contract Final Report. All program operating costs were covered by BPA.

COMMERCIAL INCENTIVES PILOT PROGRAM

Description

Under the sponsorship of the Bonneville Power Administration (BPA), Seattle City Light operated a pilot program from July 1986 through September 1990, in which financial incentives were offered to commercial customers for installing energy conservation measures in buildings. Funding for the Commercial Incentives Pilot Program (*CIPP*) ended on September 30, 1990, and all contracts with customers were executed by this date. Installation of the energy conservation measures in some of the buildings continued into 1991.

The financial incentives for customers were offered through two program components, rebate and incentive. In the rebate part of the *CIPP* program, the incentives were offered to small commercial customers with annual electricity consumption from 6,000 to 150,000 kilowatt-hours. City Light paid the customers a rebate for a portion of the installed cost on a limited set of conservation measures.

For medium and large customers whose annual electricity consumption was more than 150,000 kilowatt-hours, City Light paid the customers an incentive for all cost-effective conservation measures that were identified in an energy audit. The amount of the incentive payments to the customers depended on the estimated electrical energy savings for the buildings.

Conservation services in the *CIPP* were provided through City Light and energy service companies (ESCos). Customers received an energy audit of their building, an analysis of the building's energy use and potential energy savings, recommended conservation measures for realizing these energy savings, training in operation and maintenance procedures, and performance specifications for the measures. The customer (or the ESCo) was responsible for arranging with contractors to install conservation measures in the building and for any financing. City Light and the BPA inspected the building for proper installation of the measures. The BPA reimbursed City Light for the payment that was made to the customer.

Eligible Population

This program served Seattle City Light's 29,520 commercial and 1,995 governmental customers. (1)

COMMERCIAL INCENTIVES PILOT PROGRAM

Lifetime of Conservation Measures Installed

Varies, with an estimated average lifetime of 13 years for rebate buildings and 16 years for incentive buildings. (2)

Electricity Savings

The first year savings per rebate building are 2,500 megawatt-hours (MWh) for 1987 participants, 5,800 MWh for 1988 participants, and 5,300 MWh for 1989 participants. The first year savings per incentive building were 66,400 MWh for 1987 participants, 278,400 MWh for 1988 participants, and 74,200 MWh for 1989 participants. The first year savings for 1990 and 1991 participants are based on a weighted average of the first year savings per square foot for 1987, 1988, and 1989 participants. The calculations were done separately for rebate and incentive participants.

Savings for 1987, 1988, and 1989 participants though the 1992 calendar year were taken from the 1994 evaluation of the *CIPP* program. The 1992 savings for these groups were carried forward for years beyond 1992. For 1990 and 1991 participants, first year savings were carried forward for subsequent years.

Since 1986, *CIPP* has saved a total of 44,997 megawatt-hours (MWh). Energy savings in 2006 from cumulative (1987-1991) participants were 5,655 MWh. The load reduction in 2006 due to this program was 0,646 average megawatts (aMW).

COMMERCIAL INCENTIVES PILOT PROGRAM

ELECTRICITY SAVINGS FOR THE COMMERCIAL INCENTIVES PILOT PROGRAM

Year	*Partici-pants by Year*	*Cumulative Participants* (3)	*kWh Savings per Participant* (4)	*MWh Savings in Year* (5)	*Avg. MW Load Reduction in Year*
Rebate Customers:					
1987	20	20	2,500	50	0.006
1988	17	37	5,765	168	0.019
1989	19	56	5,253	123	0.014
1990	44	100	3,122	459	0.052
1991	3	103	20,407	575	0.066
1992	0	103	20,407	575	0.066
1993	0	103	20,407	575	0.066
1994	0	103	20,407	575	0.066
1995	0	103	20,407	575	0.066
1996	0	103	20,407	575	0.066
1997	0	103	20,407	575	0.066
1998	0	103	20,407	575	0.066
1999	0	103	20,407	575	0.066
2000	0	103	20,407	525	0.060
2001	0	103	20,407	407	0.046
2002	0	103	20,407	451	0.052
2003	0	103	20,407	116	0.013
2004-2006	0	103	20,407	0	0.000
Incentive Customers:					
1987	18	18	66,411	1,195	0.136
1988	28	46	278,364	8,946	1.021
1989	37	83	74,165	10,628	1.213
1990	28	111	193,314	15,440	1.763
1991	20	131	415,000	21,096	2.408
1992	0	131	415,000	21,096	2.408
1993	0	131	415,000	21,096	2.408
1994	0	131	415,000	21,096	2.408
1995	0	131	415,000	21,096	2.408
1996	0	131	415,000	21,096	2.408
1997	0	131	415,000	21,096	2.408
1998	0	131	415,000	21,096	2.408
1999	0	131	415,000	21,096	2.408
2000	0	131	415,000	21,096	2.408
2001	0	131	415,000	21,096	2.408
2002	0	131	415,000	21,096	2.408
2003	0	131	415,000	19,900	2.272
2004	0	131	415,000	12,150	1.387
2005	0	131	415,000	10,468	1.195
2006	0	131	415,000	5,655	0.646

(Cont'd.)

COMMERCIAL INCENTIVES PILOT PROGRAM

ELECTRICITY SAVINGS FOR THE COMMERCIAL INCENTIVES PILOT PROGRAM

(Continued)

Year	*Partici-pants by Year*	*Cumulative Participants* (3)	*kWh Savings per Participant* (4)	*MWh Savings in Year* (5)	*Avg. MW Load Reduction in Year*
Total Program:					
1987	38	38	—	1,245	0.142
1988	45	83	—	9,114	1.040
1989	56	139	—	10,751	1.227
1990	72	211	—	15,899	1.815
1991	23	234	—	21,670	2.474
1992	0	234	—	21,670	2.474
1993	0	234	—	21,670	2.474
1994	0	234	—	21,670	2.474
1995	0	234	—	21,670	2.474
1996	0	234	—	21,670	2.474
1997	0	234	—	21,670	2.474
1998	0	234	—	21,670	2.474
1999	0	234	—	21,670	2.474
2000	0	234	—	21,620	2.468
2001	0	234	—	21,502	2.455
2002	0	234	—	21,547	2.460
2003	0	234	—	20,016	2.285
2004	0	234	—	12,150	1.137
2005	0	234	—	10,468	1.195
2006	0	234	—	5,656	0.646
Electricity Savings Since Start of Program:				**344,997**	**MWh**

COMMERCIAL INCENTIVES PILOT PROGRAM

Program Expenditures

Program expenditures from 1986 through 1991 for administration and incentives to commercial customers were $6,949,122. This represents the cost to the utility, and not the total resource cost. The Bonneville Power Administration provided $6,136,750 in funding during these years.

PROGRAM EXPENDITURES FOR THE COMMERCIAL INCENTIVES PILOT PROGRAM

Year	*Administration* (6)	*Incentives* (7)	*Total Expenditures*
1986	$155,743	$0	$155,743
1987	368,079	310,126	678,205
1988	419,717	1,147,872	1,567,589
1989	497,918	972,105	1,470,023
1990	519,463	1,564,283	2,083,746
1991	55,077	938,739	993,816
1992-2006	0	0	0
Total	**$2,015,997**	**$4,933,125**	**$6,949,122**

BPA FUNDING FOR THE COMMERCIAL INCENTIVES PILOT PROGRAM (8)

Year	*Administration*	*Incentives*	*Total Funding*
1986	$32,386	$0	$32,386
1987	161,000	113,381	274,381
1988	163,460	1,369,330	1,532,790
1989	278,507	1,219,824	1,498,331
1990	130,037	1,484,916	1,614,953
1991	83,172	1,100,737	1,183,909
1992-2006	0	0	0
Total	**$848,562**	**$5,288,188**	**$6,136,750**

COMMERCIAL INCENTIVES PILOT PROGRAM

Notes

1. The eligible population figures are from the *Seattle City Light Fingertip Facts* (December 1993).

2. There is considerable variability in the lifetime of the conservation measures installed by *CIPP* participants (*Conservation Measures Life Study for Resource Planning*, BPA, 1987). The conservation measure lifetimes used in this report are from the Evaluation Unit's recent cost effectiveness analysis of the CIPP program (1994).

3. Energy savings information for 1987, 1988, and 1989 participants was derived from the latest evaluation of the *CIPP* program, *Persistence of Energy Savings in the Commercial Incentives Pilot Program* (1994). Earlier CIPP evaluations are listed in the bibliography of this report.

4. Energy savings for 1990 and 1991 *CIPP* participants were calculated by taking a weighted average of the first year savings per square foot from the 1994 evaluation (*Persistence of Energy Savings in the Commercial Incentives Pilot Program*), and then multiplying this weighted average by the average square footage in the buildings of 1990 and 1991 participants. The calculation was done separately for rebate and incentive participants. The following table shows the average square footage by year and participant group for the *CIPP* program.

Year	Rebate	Incentive
1987	3,680	36,843
1988	8,556	99,570
1989	13,000	44,398
1990	5,723	81,320
1991	37,413	174,575

5. The total MWh energy savings by year reflect savings for the current year participants plus savings in that year from prior participants. Savings for commercial buildings were found to vary from year to year for prior participants, as shown below in the kWh savings per building for Rebate and Incentive participants. In this table, the savings estimate for the last post-program year evaluated is carried forward by cohort in future years. Additional documentation on the energy savings for these buildings can be found in *Persistence of Energy Savings in the Commercial Incentives Pilot Program* (1994).

REBATE Year	First Year	Second Year	Third Year	Fourth Year	Fifth Year	Sixth Year	Seventh Year
1987	2,500	3,500	2,400	9,400	11,200	11,200	11,200
1988	5,765	(1,441)	(7,124)	(5,329)	(5,329)	(5,329)	
1989	5,253	13,389	12,779	12,779	12,779		
1990	3,122	3,122	3,122	3,122			
1991	20,407	20,407	20,407				
INCENTIVE							
1987	66,411	63,967	61,322	63,189	61,322	61,322	61,322
1988	278,364	242,143	274,314	219,618	219,618	219,618	
1989	74,165	32,678	3,503	3,503	3,503		
1990	193,314	193,314	193,314	193,314			
1991	415,000	415,000	415,000				

First year energy savings from program participants completing work in each year were: 1,245 MWh (1987); 7,868 MWh (1988); 1,638 MWh (1989); 5,148 MWh (1990); and 5,772 MWh (1991).

COMMERCIAL INCENTIVES PILOT PROGRAM

6. Administrative costs for 1986 and 1988 through 1990 were obtained from City Light MIS reports for Work Order No. 70596. These costs include: salaries and wages (budget items 9, 11, and 12); materials, supplies, and printing (21 and 22); paid media space (35); contracted engineering and architectural services (37); data processing (48); and travel (60 and 61). Budget item 66 (incentive costs) was not included in the administrative costs.

   For 1987, the administrative costs in the MIS report were reduced by $80,539 to reflect the fact that, according to program operators, most of the 1987 audit costs for the Energy Management Survey Program were reported under the *CIPP* work order number. For 1991, the administrative costs were taken from Work Order No. 70596 in the Seattle Financial Management System year-end "Work Order Detail Report" (URW210L).

7. Information on payments made to rebate and incentive customers by the *CIPP* program were obtained from financial records maintained by the Commercial–Industrial Section, Energy Management Services Division. These payments are a portion of the total installation costs for the conservation measures. For example, in 1987 the incentive payments to customers were $310,126, whereas the installation costs for the measures were $452,481.

8. Information on BPA reimbursements to Seattle City Light for administration and financial incentives to customers was obtained from Commercial–Industrial Section records of invoiced amounts submitted to BPA.

ENERGY CODE MAJOR PROJECTS REQUIREMENT

Description

The Seattle Energy Code (*SEC*) was amended in December 1983 to include special requirements for major construction projects having over 50,000 square feet. However, the *SEC* provision, requiring a 10% reduction below code was discontinued in July 1991. Previously, to comply with the Major Projects Requirement (*MPR*), designers were required to conduct an energy consumption analysis during the building permit process. Using computer simulations, these analyses demonstrated that the projected energy consumption for the proposed buildings were at least 10% less than the consumption for standard code buildings. This additional efficiency could be achieved through building envelope design and/or the design and selection of the building's mechanical, electrical, water heating, and lighting systems.

Eligible Population

This program applied to new commercial construction from 1986 through 1991 that exceeded 50,000 square feet.

Lifetime of Conservation Measures Installed

Varies, but not less than 16 years. (1)

Electricity Savings

Office buildings covered by this requirement were estimated to have acquired no energy savings, based on an evaluation conducted midway through the program. Thus, the only savings for the Major Projects Requirement came from the 23 non-office buildings.

Since 1986 the Energy Code *MPR* has saved a total of 143,232 megawatt-hours (MWh). Energy savings in 2006 from cumulative (1986-1991) participants were 3,051 MWh. The load reduction in 2006 due to this program was 0.348 average megawatts (aMW).

ENERGY CODE MAJOR PROJECTS REQUIREMENT

ENERGY SAVINGS FOR THE MAJOR PROJECT REQUIREMENT
From Office and Non-Office Buildings

Year	*Partici-pants by Year* (2)	*Cumulative Participants*	*Cumulative Sq. Ft. per Year* (3)	*MWh Savings in Year* (3)	*Avg. MW Load Reduction in Year*
Office Buildings:					
1986	1	1	108,000	0	0.000
1987	7	8	2,411,000	0	0.000
1988	5	13	4,543,000	0	0.000
1989	5	18	7,607,000	0	0.000
1990	3	21	8,267,000	0	0.000
1991	2	23	9,086,000	0	0.000
1992-2006	0	23	9,086,000	0	0.000
Non-Office Buildings:					
1986	5	5	1,431,000	2,648	0.302
1987	0	5	1,431,000	2,648	0.302
1988	3	8	1,650,000	3,435	0.388
1989	3	11	2,122,000	4,136	0.472
1990	6	17	2,967,000	5,901	0.674
1991	6	23	4,521,000	8,952	1.022
1992	0	23	4,521,000	8,952	1.022
1993	0	23	4,521,000	8,952	1.022
1994	0	23	4,521,000	8,952	1.022
1995	0	23	4,521,000	8,952	1.022
1996	0	23	4,521,000	8,952	1.022
1997	0	23	4,521,000	8,952	1.022
1998	0	23	4,521,000	8,952	1.022
1999	0	23	4,521,000	8,952	1.022
2000	0	23	4,521,000	8,952	1.022
2001	0	23	4,521,000	8,952	1.022
2002	0	23	4,521,000	6,304	0.720
2003	0	23	4,521,000	6,304	0.720
2004	0	23	4,521,000	5,517	0.630
2005	0	23	4,521,000	4,816	0.550
2006	0	23	4,521,000	3,051	0.648
Electricity Savings Since Start of Program:				**143,232**	**MWh**

Program Expenditures

The program expenditures from 1984 through 1991 totaled $1,018,205. Expenditures of $9,891 in 1991 (the last program year) represent a continued decline of City Light spending on this program that began in 1989. This represents the cost to the utility, not the total cost of the resource. The Bonneville Power Administration (BPA) supplied no funding for this program after 1989.

ENERGY CODE MAJOR PROJECTS REQUIREMENT

PROGRAM EXPENDITURES FOR THE MAJOR PROJECTS REQUIREMENT

Year	*Expenditures* (4)
1984	$38,875
1985	36,021
1986	221,062
1987	197,925
1988	275,607
1989	176,814
1990	62,010
1991	9,891
1992-2006	0
Total	**$1,018,205**

BPA FUNDING FOR ADMINISTRATIVE COSTS OF THE MAJOR PROJECTS REQUIREMENT (5)

Year	*Funding*
1986	$54,653
1987	196,820
1988	134,047
1989	65,863
1990-2006	0
Total	**$451,383**

Notes

1. The lifetime of the conservation measures is dependent upon the specific measures or strategies incorporated in the constructed and occupied building. For many of the building systems the durability of the conservation resource is dependent upon the lifespan of the building, on remodeling and renovation cycles, and on the frequency of conversion of building use. It is likely that measure lives are maximized in new buildings, as opposed to retrofit measures which may be altered or abandoned in the next renovation/remodel cycle (*Commercial Measure Life Study,* BPA, 1987). Further, the service life of commercial conservation measures is critically dependent upon operational and maintenance practices.

   Equipment lifetimes have been estimated for commercial buildings in several studies (e.g., *ASHRAE Journal,* Volume 20:10, October 1978; and *Commercial Measure Life Study*, BPA, 1987). Typically, lighting system measures have a hardware life (and accompanying duration of savings) of 15 to 30 years, where 30 years is considered to be the length of remodeling/renovation cycles. Examples: Electronic ballasts have an operational life of approximately 18 years, while parabolic fixtures have a life of 30 years. HVAC measures have a lifespan ranging from 11 years (economizers) to 50 years (heat pumps, with replacement of worn-out parts). Building envelope measures (e.g., glazing, insulation) can be assumed to have a lifetime of 23 to 50 years--dependent upon material breakdown, leakage, etc.

ENERGY CODE MAJOR PROJECTS REQUIREMENT

2. Participants (buildings) are counted as of two years after the date of the final Energy Analysis approval (from "Status of Project Subject to Major Projects Requirement," S. Rekhi, Seattle City Light, 1988). This two-year lag allows for the actual construction and occupancy of these buildings. Thus, the participants and their savings shown for 1986 through 1988 are buildings that received Energy Analysis approvals in 1984 through 1986, respectively.

3. Annual savings for office buildings are reported as zero because the evaluation done by Momentum Engineering, Ecotope, and Seattle City Light (*Evaluation of Performance-Based Energy Codes for Large Office Buildings*) reported zero savings. Annual savings for non-office buildings are calculated on a per square foot basis, and thus vary by year (i.e., are weighted) according to the average conditional square footage of *MPR* buildings for that year. According to data received from Department of Construction and Land Use (DCLU), the cumulative square feet per year are reported in the tables.

   Electricity savings for non-office buildings are calculated as 10% of the typical energy-use index (EUI) for electrical energy only (no gas or purchased steam is included in the EUI estimate). The typical EUI is estimated from audit data gathered for the *MPR* Phase II evaluation (*Major Projects Rule Phase II Evaluation: First Year Report,* prepared for City Light by Momentum Engineering and Ecotope, Inc., 1988). Preliminary results of the *MPR* Phase II evaluation suggest variability in EUI's for non-office *MPR* buildings of about 1.0 to 6.0 kWh/square foot/year including electrical energy only, depending on intensity of electrical use. When the 10% savings requirements is multiplied by the EUI for each building, we get the kWh/sq. ft. for that building. For the non-office buildings, the savings vary by the intensity of use.

   This method of calculating savings has at least two important shortcomings: First, the method infers that 10% of the typical EUI constitutes savings directly attributable to the *MPR*, thereby assuming that the buildings would have consumed about 10% more electricity had they not complied with the *MPR*. Second, there is a significant, but uncalculated, occupancy effect. That is, the EUI's and energy savings vary in different ways across these buildings, depending upon building occupancy and upon the HVAC system capability to "shut down" vacant portions of the conditioned space.

   First year energy savings from new participants completing work in each year were: 2,648 MWh (1986); 0 MWh (1987); 787 MWh (1988); 701 MWh (1989); 1,765 MWh (1990); and 3,051 MWh (1991).

4. The source of program administration and implementation expenditures for 1986 through 1990 is City Light MIS reports (Work Order No. 70569). For 1984 and 1985 the MIS Work Order No. was 70569-07. The large increase in expenditures from 1985 to 1986 is due to major Projects Requirement work performed by the Department of Construction and Land use. Expenditures declined further with the discontinuation in July 1991 of the code requirements. For 1991, program expenditures were taken from Work Order No. 70569 in the Seattle Financial Management System year-end report.

5. These data are based on City Light's invoices submitted to and paid by BPA under the BPA Early Adopter Program as reported in City Light MIS reports for Work Order No. 70569). The figure for 1986 is a prorated estimated for that year based on a reimbursement invoice for the period October 1986 through September 1987.

ENERGY MANAGEMENT PARTNERSHIP PROGRAM

Description

This program provided ongoing energy conservation advice for a six- to 12-month period to commercial and industrial customers. Assistance included developing the customer's energy consumption index; conducting an energy audit; and recommending tuning, operation, maintenance and retrofit actions for reducing energy usage. On January 1, 1984, the program was incorporated into the Energy Management Survey Program.

Eligible Population

This program served City Light's commercial and industrial customers.

Lifetime of Conservation Measures Installed

Varies, with an estimated average lifetime of 16 years for measures installed by customers on their own. (1)

Electricity Savings

The average savings were 122,110 kilowatt-hours (two percent, 2%, of the pre-program consumption) for 17 commercial program participants and 621,280 kilowatt-hours (12% of the pre-program consumption) for the one industrial customer in the evaluation.

Between 1980 and 1998, the Energy Management Partnership Program saved a total of 110,447 megawatt-hours (MWh). However, since the lifetime of these measures has expired, this program did not deliver any savings in 2006.

ENERGY MANAGEMENT PARTNERSHIP PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY MANAGEMENT PARTNERSHIP PROGRAM

Year	*Participants by Year*	*Cumulative Participants*	*kWh Savings per Participant* (2)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Commercial Customers:					
1980	6	6	122,110	733	0.084
1981	2	8	122,110	977	0.112
1982	10	18	122,110	2,198	0.251
1983	8	26	122,110	3,175	0.362
1984	0	26	122,110	3,175	0.362
1985	0	26	122,110	3,175	0.362
1986	0	26	122,110	3,175	0.362
1987	0	26	122,110	3,175	0.362
1988	0	26	122,110	3,175	0.362
1989	0	26	122,110	3,175	0.362
1990	0	26	122,110	3,175	0.362
1991	0	26	122,110	3,175	0.362
1992	0	26	122,110	3,175	0.362
1993	0	26	122,110	3,175	0.362
1994	0	26	122,110	3,175	0.362
1995	0	26	122,110	3,175	0.362
1996	0	26	122,110	2,442	0.279
1997	0	26	122,110	2,198	0.251
1998	0	26	122,110	977	0.112
1999-2006	0	26	122,110	0	0.000
Industrial Customers:					
1980	1	1	621,280	621	0.071
1981	1	2	621,280	1,243	0.142
1982	0	2	621,280	1,243	0.142
1983	4	6	621,280	3,728	0.426
1984	0	6	621,280	3,728	0.426
1985	0	6	621,280	3,728	0.426
1986	0	6	621,280	3,728	0.426
1987	0	6	621,280	3,728	0.426
1988	0	6	621,280	3,728	0.426
1989	0	6	621,280	3,728	0.426
1990	0	6	621,280	3,728	0.426
1991	0	6	621,280	3,728	0.426
1992	0	6	621,280	3,728	0.426
1993	0	6	621,280	3,728	0.426
1994	0	6	621,280	3,728	0.426
1995	0	6	621,280	3,728	0.426
1996	0	6	621,280	3,106	0.355
1997	0	6	621,280	2,485	0.284
1998	0	6	621,280	2,485	0.284
1999-2006	0	6	621,280	0	0.000

(Cont'd.)

ENERGY MANAGEMENT PARTNERSHIP PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY MANAGEMENT PARTNERSHIP PROGRAM

(Continued)

Year	*Participants by Year*	*Cumulative Participants*	*kWh Savings per Participant* (2)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Total Program:					
1980	7	7	—	1,354	0.155
1981	3	10	—	2,219	0.253
1982	10	20	—	3,441	0.393
1983	12	32	—	6,903	0.788
1984	0	32	—	6,903	0.788
1985	0	32	—	6,903	0.788
1986	0	32	—	6,903	0.788
1987	0	32	—	6,903	0.788
1988	0	32	—	6,903	0.788
1989	0	32	—	6,903	0.788
1990	0	32	—	6,903	0.788
1991	0	32	—	6,903	0.788
1992	0	32	—	6,903	0.788
1993	0	32	—	6,903	0.788
1994	0	32	—	6,903	0.788
1995	0	32	—	6,903	0.788
1996	0	32	—	5,549	0.633
1997	0	32	—	4,683	0.535
1998	0	32	—	3,462	0.395
1999-2006	0	32	—	0	0.000
Electricity Savings Since Start of Program:				**110,447**	**MWh**

Program Expenditures

The program expenditures from 1980 through 1983 for administration totaled $234,401. This represents the cost of the utility, and not the total resource cost. There was no outside funding received for this program.

ENERGY MANAGEMENT PARTNERSHIP PROGRAM

PROGRAM EXPENDITURES FOR THE ENERGY MANAGEMENT PARTNERSHIP PROGRAM

Year	***Expenditures*** (3)
1980	$45,841
1981	22,927
1982	87,367
1983	78,266
1984-2006	0
TOTAL	**$234,401**

Notes

1. The lifetime of the conservation measures is based on data presented by Gordon, et al. (Use of Commercial Energy Efficiency Measures Service Life Estimates in Program and Resource Planning, *ACEEE 1988 Summer Study on Energy Efficiency in Buildings*, Vol. 3). Since there is considerable variability in the lifetime of conservation measures for commercial and industrial buildings, the lifetimes for the different measures were amalgamated into one lifetime figure, 16 years.

2. Electricity savings figures are documented in the *Evaluation of the Energy Management Partnership Program* (May 1984). After 1983, the program was discontinued, so the later savings shown represent continuing savings from earlier program participants only.

   First year energy savings from new participants completing work in each year were: 1,354 MWh (1980); 865 MWh (1981); 1,222 MWh (1982); and 3,462 MWh (1983).

3. Program expenditures of $6,548 per customer were calculated for 1980, based on information provided in the *Evaluation of Seattle City Light's Energy Management Consultation Services* (November 1980), and the *Evaluation of the Walk-Through Survey Program for Commercial and Industrial Customers* (June 1983). Only administrative costs are included. Costs borne by the customers have not been estimated. Data are from City Light MIS reports and include labor, overhead, training, and advertising costs. Data for 1981 were not available; thus, an estimate of $7,642 per customer was used, an average of the 1980 and 1982 expenditures per customer. The 1983 data are from City Light MIS reports for Work Order No. 70534.

ENERGY MANAGEMENT SURVEY PROGRAM

Description

In the Energy Management Survey Program (*EMSP*), Seattle City Light's energy management analysts provided commercial and industrial customers with facility energy surveys, training in energy management practices and monitoring of their energy consumption, and recommendations of conservation measures for increasing the facility's energy efficiency. The program, which replaced the Energy Management Partnership Program and the Walk-Through Survey Program, operated from 1984 through December 1992.

Eligible Population

This program served City Light's 29,520 commercial, 1,995 governmental, and 286 industrial customers. (1)

Lifetime of Conservation Measures Installed

Varies, with an estimated average lifetime of 16 years. (2)

Electricity Savings

The *EMSP* savings for small and medium size commercial customers are 23,200 kilowatt-hours (kWh) annually per participant, or six percent (6%) of the pre-program consumption. The average energy savings for large commercial customers are 122,100 kWh (two percent, 2%, of pre-program consumption). Among industrial participants, the average savings are 73,800 kWh for small and medium size industrial customers, and 621,200 kWh for large industrial customers (11% of pre-program consumption).

Since 1984, *EMSP* has saved a total of 584,488 megawatt-hours (MWh). Energy savings in 2006 from cumulative (1984-1992) participants were 2,828 MWh. The load reduction in 2006 due to this program was 0.323 average megawatts (aMW).

ENERGY MANAGEMENT SURVEY PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY MANAGEMENT SURVEY PROGRAM (3)

Year	*Partici-pants by Year*	*Cumulative Participants*	*kWh Savings per Participant*	*MWh Savings in Year* (4)	*Avg. MW Load Reduction in Year*
Commercial Customers, Levels 1 & 2:					
1984	293	293	23,200	6,798	0.776
1985	216	509	23,200	11,809	1.348
1986	121	630	23,200	14,616	1.668
1987	33	663	23,200	15,382	1.756
1988	24	687	23,200	15,938	1.819
1989	66	753	23,200	17,470	1.994
1990	25	778	23,200	18,050	2.060
1991	41	819	23,200	19,001	2.169
1992	12	831	23,200	19,279	2.201
1993	0	831	23,200	19,279	2.201
1994	0	831	23,200	19,279	2.201
1995	0	831	23,200	19,279	2.201
1996	0	831	23,200	19,279	2.201
1997	0	831	23,200	19,279	2.201
1998	0	831	23,200	19,279	2.201
1999	0	831	23,200	19,279	2.201
2000	0	831	23,200	12,482	1.425
2001	0	831	23,200	7,470	0.853
2002	0	831	23,200	4,663	0.532
2003	0	831	23,200	3,898	0.445
2004	0	831	23,200	3,341	0.381
2005	0	831	23,200	1,810	0.207
2006	0	831	23,200	1,230	0.140
Commercial Customers, Level 3:					
1984	23	23	122,100	2,808	0.321
1985	28	51	122,100	6,227	0.711
1986	11	62	122,100	7,570	0.864
1987	10	72	122,100	8,791	1.004
1988	4	76	122,100	9,280	1.059
1989	0	76	122,100	9,280	1.059
1990	9	85	122,100	10,379	1.185
1991	7	92	122,100	11,233	1.282
1992	1	93	122,100	11,355	1.296
1993	0	93	122,100	11,355	1.296
1994	0	93	122,100	11,355	1.296
1995	0	93	122,100	11,355	1.296
1996	0	93	122,100	11,355	1.296
1997	0	93	122,100	11,355	1.296
1998	0	93	122,100	11,355	1.296
1999	0	93	122,100	11,355	1.296
2000	0	93	122,100	8,547	0.976
2001	0	93	122,100	5,128	0.585
2002	0	93	122,100	3,785	0.432
2003	0	93	122,100	2,564	0.293
2004	0	93	122,100	2,076	0.237
2005	0	93	122,100	2,076	0.237
2006	0	93	122,100	977	0.112

(Cont'd.)

ENERGY MANAGEMENT SURVEY PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY MANAGEMENT SURVEY PROGRAM

(Continued)

Year	*Partici-pants* by Year	*Cumulative* Participants	*kWh Savings per* Participant	*MWh Savings in Year* (4)	*Avg. MW Load Reduction* in Year
Industrial Customers, Levels 1 & 2:					
1984	1	1	73,800	74	0.008
1985	3	4	73,800	295	0.034
1986	1	5	73,800	369	0.042
1987	0	5	73,800	369	0.042
1988	0	5	73,800	369	0.0421
1989	0	5	73,800	369	0.042
1990	0	5	73,800	369	0.042
1991	0	5	73,800	369	0.042
1992	0	5	73,800	369	0.042
1993	0	5	73,800	369	0.042
1994	0	5	73,800	369	0.042
1995	0	5	73,800	369	0.042
1996	0	5	73,800	369	0.042
1997	0	5	73,800	369	0.042
1998	0	5	73,800	369	0.042
1999	0	5	73,800	369	0.042
2000	0	5	73,800	295	0.034
2001	0	5	73,800	74	0.008
2002-2006	0	5	73,800	0	0.000
Industrial Customers, Level 3:					
1984	5	5	621,200	3,106	0.355
1985	1	6	621,200	3,727	0.425
1986	1	7	621,200	4,348	0.496
1987	1	8	621,200	4,970	0.567
1988	0	8	621,200	4,970	0.567
1989	0	8	621,200	4,970	0.567
1990	0	8	621,200	4,970	0.567
1991	0	8	621,200	4,970	0.567
1992	1	9	621,200	5,591	0.638
1993	0	9	621,200	5,591	0.638
1994	0	9	621,200	5,591	0.638
1995	0	9	621,200	5,591	0.638
1996	0	9	621,200	5,591	0.638
1997	0	9	621,200	5,591	0.638
1998	0	9	621,200	5,591	0.638
1999	0	9	621,200	5,591	0.638
2000	0	9	621,200	2,485	0.284
2001	0	9	621,200	1,864	0.213
2002	0	9	621,200	1,242	0.142
2003	0	9	621,200	621	0.071
2004	0	9	621,200	621	0.071
2005	0	9	621,200	621	0.071
2006	0	9	621,200	621	0.071

(Cont'd.)

ENERGY MANAGEMENT SURVEY PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY MANAGEMENT SURVEY PROGRAM

(Continued)

Year	*Partici-pants by Year*	*Cumulative Participants*	*kWh Savings per Participant*	*MWh Savings in Year* (4)	*Avg. MW Load Reduction in Year*
Total Program, Levels 1, 2 & 3:					
1984	322	322	—	12,786	1.460
1985	248	570	—	22,058	2.518
1986	134	704	—	26,904	3.070
1987	44	748	—	29,511	3.369
1988	28	776	—	30,557	3.487
1989	66	842	—	32,088	3.663
1990	34	876	—	33,767	3.855
1991	48	924	—	35,573	4.061
1992	14	938	—	36,594	4.177
1993	0	938	—	36,594	4.177
1994	0	938	—	36,594	4.177
1995	0	938	—	36,594	4.177
1996	0	938	—	36,594	4.177
1997	0	938	—	36,594	4.177
1998	0	938	—	36,594	4.177
1999	0	938	—	36,594	4.177
2000	0	938	—	23,809	2.718
2001	0	938	—	14,536	1.438
2002	0	938	—	9,691	0.964
2003	0	938	—	7,083	0.809
2004	0	938	—	6,038	0.689
2005	0	938	—	4,507	0.514
2006	0	938	—	2,828	0.323
Electricity Savings Since Start of Program:				**584,488**	**MWh**

Program Expenditures

Program expenditures from 1984 through 1992 totaled $676,552. Expenditures in 1992 were $7,219. This represents the cost to the utility, and not the total resource cost. There is no outside funding for this program. (5)

ENERGY MANAGEMENT SURVEY PROGRAM

PROGRAM EXPENDITURES FOR THE ENERGY MANAGEMENT SURVEY PROGRAM

Year	***Expenditures*** (6)
1984	$235,333
1985	262,622
1986	39,859
1987	82,082
1988	28,100
1989	28,917
1990	45,499
1991	27,460
1992	7,219
1993-2006	0
Total	**$757,091**

Notes

1. The eligible population figures are from the *Seattle City Light Fingertip Facts* (December 1993).

2. The 16 year lifetime for conservation measures is based on surveys of conservation measures taken by participants in the Energy Management Survey Program (e.g., *Operational Evaluation of the Energy Management Survey Program for Commercial and Industrial Customers*, 1985), and the lifetimes reported by Gordon, McRae, and Rufo (Use of Commercial Energy Efficiency Measure Service Life Estimates in Program and Resource Planning, *Proceedings of the 1988 ACEEE Summer Study on Energy Efficiency in Buildings,* Volume 3, pp. 3.84-3.96).

3. The type of service that is provided to a customer is determined primarily by the customer's annual electricity consumption. The annual electricity consumption for the three service levels are: level 1—6,000 to 48,000 kilowatt-hours (may be as high as 150,000 kilowatt-hours at the discretion of the energy management analyst); level 2—48,000 to 1,000,000 kilowatt-hours; and level 3—above 1,000,000 kilowatt-hours.

4. Energy savings information was derived from the following evaluation reports: *Evaluation of the Walk-through Survey Program for Commercial and Industrial Customers* (June 1983); and *Evaluation of the Energy Management Partnership Program* (May 1984).

   The MWh energy savings reported by year reflect savings for the current year participants plus savings in that year from all prior participants.

   First year energy savings from program participants completing work in each year were: 12,786 MWh (1984); 9,273 MWh (1985); 4,845 MWh (1986); 2,608 MWh (1987); 1,045 MWh (1988); 1,531 MWh (1989); 1,679 MWh (1990); 1,806 MWh (1991); and 1,022 MWh (1992).

5. Expenditures in 1993 for the program were $6,764. These expenses have been allocated to the administrative costs for the Energy Smart Design Program.

ENERGY MANAGEMENT SURVEY PROGRAM

6. The source of *EMSP* administration expenditures for 1984-1990 is City Light MIS reports for Work Order No. 70503. The 1986 figure also includes $11,640 in funds that were incorrectly charged to the discontinued Energy Management Partnership Program (Work Order No. 70534).

   For 1987, the administrative costs include $80,539 that were charged to the Commercial Incentives Pilot program (Work Order No. 70596). For 1991 and 1992, the administrative costs were obtained from Work Order No. 70503 in the year-end Seattle Financial Management System's Work Order Detail Report (1991) and Monthly Master Work Order Report (1992).

ENERGY $AVINGS PLAN PROGRAM

Description

The Energy $avings Plan (*E$P*) Program was discontinued in 2004, as the final contract authorized under this program was completed. In 2002 a new entity, Energy Smart Services, subsumed the former *E$P* and Energy Smart Design (*ESD*) programs. New industrial and commercial projects (including Facility Assessments) contracted in 2002-2004 are documented in the Energy Smart Services program entry of this report (see SECTION III: ACTIVE COMMERCIAL-INDUSTRIAL PROGRAMS). No new *E$P* projects were contracted in 2002-2004; however, one *E$P* project contracted prior to 2004 was completed during the year and is shown in the completed project tables for the *E$P* program.

E$P originated as a Bonneville Power Administration (BPA) sponsored retrofit program for the industrial sector. The program paid incentives for energy conservation improvements in manufacturing, processing, and refining industries. From 1988 through 1992, the BPA directly funded five *E$P* projects within Seattle City Light's service area. These five BPA projects were directly contracted between BPA and the industrial customer, with City Light Energy Management Analysts providing the site work and planning necessary to complete these projects. Since these projects were a consequence of City Light conservation staff work and resulted in verified energy savings in the Seattle service area, they are reported here under the *E$P* program.

The BPA directly funded some *E$P* projects in Seattle from 1992 through 1996. In September 1991, City Light signed an *E$P* contract with the BPA to market the program to industrial customers, to assist them in identifying and evaluating energy efficiency opportunities, to monitor efficiency measure installation, and to verify energy savings. The *E$P* program provided funding for energy reviews (audits), financial incentives for implementing energy conservation measures, and rebates for energy efficient motors. Funding by the BPA via the Third Party Financing Agreement began in June 1994. All energy review and incentive projects qualified for BPA funding were contracted before December 31, 1996. As these projects contracted prior to 1997 were completed, City Light continued through September 1999 to receive reimbursements from the BPA to supplement Seattle ratepayer conservation funding. Beginning in 1997, Seattle City Light replaced the BPA as the sole source of incentive and administrative funding for *E$P* projects.

ENERGY $AVINGS PLAN PROGRAM

An Energy Review was an analysis of an industrial plant to identify potential electric energy efficiencies and estimates of their associated costs and energy savings. The program paid an incentive to the customer for the cost of the audit, and funded the administrative cost of preparing the project proposal. Under the Incentive option of the *E$P* program, City Light paid 15 cents for each first year kilowatt-hour saved, up to 80% of the measure cost. Through 1996, 100% of this incentive amount was reimbursed by the BPA; since then City Light was the sole funder of conservation incentives.

Through 1993, the Motor Rebate feature of the *E$P* program provided a standard, fixed payment to replace motors used as part of an industrial process or end use. In 1994 the Motor Rebate option was replaced by the Electric League's Motor program which offered customers instant rebates ranging from $30 to $3,250 for purchasing energy efficient motors. The Electric League's Motor program rebates ended in 1997 due to adoption of federal motor efficiency standards. Incentives for high efficiency motors continued to be available through the *E$P* Custom Incentive option, if motors exceeded mandatory efficiency requirements and were packaged with other equipment.

E$P Incentive projects began when a City Light Energy Management Analyst assisted interested firms in developing a proposal containing a project summary, descriptions of the energy conservation measures (ECMs) to be installed, a work schedule, project cost proposal, estimated energy savings, and energy savings verification methods. If the proposal was approved, a contract between the customer and City Light was prepared. Once approved by City Light (and formerly, the BPA) installation of the ECMs could begin. Payment for installed measures was contingent on verified energy savings.

An Air Compressor Efficiency (ACE) service was delivered to a total of 18 industrial customers in 1996-1997, as part of the *E$P* Program. Participating industrial customers received a comprehensive audit of their air compressor system, along with recommendations to improve its efficiency. This service was discontinued in late 1997. Industrial customers continued to be eligible for energy audits of their industrial process end-use equipment, including air compressor systems, under the *E$P* Energy Review feature.

The Operations and Resource Assessment (ORA) Service was first offered in 1997 to City Light's commercial and industrial customers. In 2000 the ORA service was renamed the Facility Assessment (FA) service. The service was provided free to customers and was designed to help them manage operating costs and identify specific action items that could reduce both energy and non-energy (e.g., water) usage. Services provided to customers through the program included a resource-use audit at the customer's facility, a report which included recommended actions for reducing the use of electricity, water, and other resources at the facility, and a joint City Light–Customer Action Plan for implementing report recommendations. The FA service was also designed as a way for customers to be referred to other City Light services that could help them.

ENERGY $AVINGS PLAN PROGRAM

Before initiating *E$P*, City Light conducted the Industrial Research and Demonstration Project (IRDP) between 1988 and 1991, to test the energy savings and cost-effectiveness for a set of 15 pilot industrial projects. The IRDP found that substantial, cost-effective electricity savings could be achieved, and that the potential energy savings for City Light's industrial sector could total 26.5 aMW by the year 2003. For a description of the IRDP, see the *Industrial Research and Demonstration Project*, in SECTION V.

Eligible Population

This program served business facilities where there is manufacturing, processing, or refining activity. In 2001, City Light had 259 industrial customers. (1)

Lifetime of Conservation Measures Installed

The lifetimes of measures vary, with an estimated average lifetime of 16 years. (2)

Electricity Savings

This section contains two tables. The first depicts projects contracted by City Light during the calendar year. This table shows the potential energy savings that would be realized when the projects were completed. Industrial projects may take up to two years to move from contract to completion. The first table shows some projects which were subsequently terminated. The second table presents savings realized from projects completed during the calendar year, and from cumulative participants.

Note that the energy savings (both MWh and aMW) reported in both tables reflect savings from current year participants as well as savings in that year from all prior participants for whom the measure lifetime has not yet expired. For a description of first-year savings from current year participants only, see the referenced footnotes. The line titled "electricity savings since start of program" sums savings across all the years from program inception through the current reporting year. This illustrative construct exceeds the actual savings experienced in any given calendar year.e

The following tables document savings from all *ESP* projects. Since 1988, *E$P* has saved a total of 782,622 megawatt-hours (MWh). In 2006 the energy savings from cumulative (1988-2004) completed projects, including financed and facility assessment projects, were 79,094 MWh. The load reduction in 2006 due to this program was 9.029 average megawatts (aMW). Following are more details about financed projects, facility assessments, and non-incentive projects.

ENERGY $AVINGS PLAN PROGRAM

Financed Projects: Of the five *E$P* program options (energy review, motor rebates, Electric League instant motor rebates, incentives, and facility assessments), electricity savings were measured only for incentive projects, the instant motor rebate program, and facility assessment actions funded by customers themselves. Energy savings resulting from energy reviews are counted only if the review eventually results in one or more incentive projects. The BPA did not require site-specific estimates of savings for *E$P* Motor Rebates (in effect 1991-1993).

Since the *E$P* program began in 1988, 100 incentive projects were contracted; five of these were directly funded by the BPA. Of the 100 contracted incentive projects, 92 were completed by the end of 2004, and the remaining eight projects were terminated. (3) In addition, projects were contracted and completed for eight Energy Reviews, eight *E$P* Motor Rebates, and 337 Electric League Motor Rebates.

In addition to these *E$P* industrial savings, a portion of Energy Smart Design (*ESD*) program savings result from energy conservation measures installed in industrial facilities. These *ESD*-funded measures were largely lighting, HVAC equipment (heating-ventilation-air conditioning), and other measures not directly related to industrial processes. During the years 1991 through 2004, the first-year savings from total industrial *ESD* participants were 56,231 MWh. These savings are included as part of total program energy savings in the *ESD* program (see the *Energy Smart Design Program* entry to this report).

Facility Assessments: During 1997-2001, 33 Facility Assessment (FA) reports and action plans were completed for industrial customers who participated in the service through the *E$P* program. Beginning in 2002, all new industrial and commercial projects, including FA projects, appear in the electricity savings tables of the Energy Smart Services (*ESS*) program entry.

The potential electricity savings identified in these FA audits for industrial customers were 12,826 MWh, an average of 389 MWh per site. Realization of these savings is dependent on the customers arranging appropriate financing and installing the conservation measures in the facilities. This financing can be done by the customers themselves or through the *E$P*, *ESD* and *ESS* programs offered by Seattle City Light. When the customers themselves financed these actions, the savings are presented in the <u>completed</u> savings table under the Facility Assessment category. Between 1997 and 2002, an estimated 737 MWh of savings from cumulative participants were financed by industrial FA customers through the *E$P* program. Savings financed by City Light through the *E$P*, *ESD* and *ESS* programs are presented in the table under the relevant program component (e.g., Incentive).

Most customers who participated in FA services were referred to one or more additional City Light services. Program records indicate that, from 1998 through 2004, 74% of FA participants were referred to the financial incentives available for conservation measures installed through the *ESD* or *E$P* programs. Participants were also referred to a variety of City services, including the

ENERGY $AVINGS PLAN PROGRAM

Water Smart Technology Program offered by Seattle Public Utilities, City Light's non-incentive services, power factor and power quality correction services, and to the appropriate City Light staff to resolve billing or rate questions. (For more information about Facility Assessments, see the *Energy Smart Design Program* entry in SECTION V.)

Non-incentive Projects: Electrical energy savings were also achieved by customers who received facility assessments or technical assistance from City Light, and then installed conservation measures at their own expense in their facilities. These measures consist of both equipment replacement, and operation and maintenance actions. Non-incentive savings occurring in *industrial* facilities between 1996 and 2001 are shown below, but do not appear in the contracted or completed savings tables. Non-incentive savings acquired in *commercial* facilities during this period are discussed in the *ESD* program entry. Beginning in 2002 and thereafter, all non-incentive savings in both the commercial and industrial sectors are included in the Energy Smart Services (*ESS*) program entry.

In 1996 through 2001, some non-incentive project customers took Air Compressor Efficiency (ACE) conservation actions that were estimated to have annual energy savings of 11,200 MWh. Of these total ACE savings, 9,244 MWh were acquired in industrial facilities and 1,956 MWh in commercial facilities. The majority of these savings were revealed in an evaluation of the ACE service conducted in early 1998. These savings at industrial facilities include 8,736 MWh from fully implemented recommendations and 1,187 MWh from partially installed measures. The 1998 ACE evaluation also showed that the service was generally well received, with an overall customer satisfaction rating of 4.4, where 5 represents "very satisfied".

In addition to the 9,244 MWh in ACE savings, during the period 1996-2001, industrial customers took non-incentive conservation actions that were estimated to have annual energy savings of 15,569 MWh. (4) These savings are <u>not</u> included in the following *E$P* savings tables. For a summary of non-incentive energy savings, see *Table 12: Seattle City Light Conservation Plan Accomplishments*, in SECTION I: SUMMARY OF ACCOMPLISHMENTS AND EXPENDITURES.

ENERGY $AVINGS PLAN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY $AVINGS PLAN PROGRAM
— Contracted Projects —

Year	*Contracted Project Type*	*Projects by Year* (5)	*Cumulative Projects*	*kWh Savings Per Project*	*MWh Savings in Year* (6)	*Avg. MW Load Reduction in Year*
BPA Direct-Funded Projects Contracted:						
1988	Incentive	2	2	1,425,849	2,852	0.326
1989	Incentive	1	3	211,690	3,063	0.350
1990	Incentive	1	4	1,711,570	4,775	0.545
1991	Incentive	1	5	1,388,638	6,164	0.704
1992	Incentive	0	5	0	6,164	0.704
1993	Incentive	0	5	0	6,164	0.704
1994	Incentive	0	5	0	6,164	0.704
1995	Incentive	0	5	0	6,164	0.704
1996	Incentive	0	5	0	6,164	0.704
1997	Incentive	0	5	0	6,164	0.704
1998	Incentive	0	5	0	6,164	0.704
1999	Incentive	0	5	0	6,164	0.704
2000	Incentive	0	5	0	6,164	0.704
2001	Incentive	0	5	0	6,164	0.704
2002	Incentive	0	5	0	6,164	0.704
2003	Incentive	0	5	0	6,164	0.704
2004	Incentive	0	5	0	3,312	0.378
2005	Incentive	0	5	0	3,100	0.354
2005	Incentive	0	5	0	1,389	0.159
Potential Electricity Savings Since Start of Program:					98,619	MWh
Joint City Light/BPA Projects Contracted:						
1991	Energy Review	1	1	0	0	0.000
	Motor Rebate	1	1	0	0	0.000
	Incentive	3	3	1,067,013	3,201	0.365
1992	Energy Review	0	1	0	0	0.000
	Motor Rebate	4	5	0	0	0.000
	Incentive	7	10	656,999	7,800	0.890
1993	Energy Review	3	4	0	0	0.000
	Motor Rebate	3	8	0	0	0.000
	Incentive	7	17	793,373	13,354	1.524
1994	Energy Review	2	6	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	17	17	2,590	44	0.005
	Incentive	16	33	752,874	25,400	2.900
1995	Energy Review	1	7	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	165	182	3,692	653	0.075
	Incentive	21	54	451,015	34,871	3.981
1996	Energy Review	0	7	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	142	324	2,996	1,079	0.123
	Incentive	13	67	734,948	44,425	5.071

(Cont'd.)

ENERGY $AVINGS PLAN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY $AVINGS PLAN PROGRAM
— Contracted Projects —

(Continued)

Year	*Contracted Project Type*	*Projects by Year* (5)	*Cumulative Projects*	*kWh Savings Per Project*	*MWh Savings in Year* (6)	*Avg. MW Load Reduction in Year*
City Light Projects Contracted:						
1997	Facility Assessment	3	3	22,343	67	0.008
	Energy Review	1	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	13	337	3,645	1,126	0.129
	Incentive	6	73	880,942	49,711	5.675
1998	Facility Assessment	8	11	22,343	246	0.028
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	2	75	2,391,276	54,493	6.221
1999	Facility Assessment	9	20	22,343	447	0.051
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	7	82	620,422	58,836	6.716
2000	Facility Assessment	6	26	22,343	581	0.066
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	2	84	540,333	59,917	6.840
2001	Facility Assessment	7	33	22,343	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	11	95	820,507	68,943	7.870
2002	Facility Assessment	0	33	0	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	0	95	0	68,943	7.870
2003	Facility Assessment	0	33	0	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	0	95	0	68,943	7.870

(Cont'd.)

ENERGY $AVINGS PLAN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY $AVINGS PLAN PROGRAM
— Contracted Projects —

(Continued)

Year	Contracted Project Type	Projects by Year (4)	Cumulative Projects	kWh Savings Per Project	MWh Savings in Year (5)	Avg. MW Load Reduction in Year
2004	Facility Assessment	0	33	0	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	0	95	0	68,943	7.870
2005	Facility Assessment	0	33	0	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	0	95	0	68,943	7.870
2006	Facility Assessment	0	33	0	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	0	95	0	68,943	7.870
Potential Electricity Savings Since Start of Program:					765,664	MWh
Total Program:						
1988	All Types	2	2	—	2,852	0.326
1989	All Types	1	3	—	3,063	0.350
1990	All Types	1	4	—	4,775	0.545
1991	All Types	6	10	—	9,365	1.069
1992	All Types	11	21	—	13,964	1.594
1993	All Types	13	34	—	19,517	2.228
1994	All Types	35	69	—	31,608	3.608
1995	All Types	187	256	—	41,688	4.759
1996	All Types	155	411	—	51,667	5.898
1997	All Types	23	434	—	57,068	6.515
1998	All Types	10	444	—	62,029	7.081
1999	All Types	16	460	—	66,573	7.600
2000	All Types	8	468	—	67,788	7.738
2001	All Types	18	486	—	76,970	8.786
2002	All Types	0	486	—	76,970	8.786
2003	All Types	0	486	—	76,970	8.786
2004	All Types	0	486	—	74,118	8.461
2005	All Types	0	486	—	73,906	8.437
2006	All Types	0	486	—	72,195	8.241
Potential Electricity Savings Since Start of Program:					**883,084**	**MWh**

ENERGY $AVINGS PLAN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY $AVINGS PLAN PROGRAM
— Completed Projects —

Year	*Completed Project Type*	*Projects by Year* (5)	*Cumulative Projects*	*kWh Savings Per Project*	*MWh Savings in Year* (6)	*Avg. MW Load Reduction in Year*
BPA Direct-Funded Projects Completed:						
1988	Incentive	0	0	0	0	0.000
1989	Incentive	1	1	927,024	927	0.106
1990	Incentive	1	2	1,924,655	2,852	0.326
1991	Incentive	1	3	211,690	3,063	0.350
1992	Incentive	2	5	1,551,788	6,167	0.704
1993	Incentive	0	5	0	6,167	0.704
1994	Incentive	0	5	0	6,167	0.704
1995	Incentive	0	5	0	6,167	0.704
1996	Incentive	0	5	0	6,167	0.704
1997	Incentive	0	5	0	6,167	0.704
1998	Incentive	0	5	0	6,167	0.704
1999	Incentive	0	5	0	6,167	0.704
2000	Incentive	0	5	0	6,167	0.704
2001	Incentive	0	5	0	6,167	0.704
2002	Incentive	0	5	0	6,167	0.704
2003	Incentive	0	5	0	6,167	0.704
2004	Incentive	0	5	0	6,167	0.704
2005	Incentive	0	5	0	5,240	0.598
2006	Incentive	0	5	0	3,315	0.378
Electricity Savings Since Start of Program:					95,568	MWh
Joint City Light/BPA Projects Completed:						
1991	Energy Review	0	0	0	0	0.000
	Motor Rebate	0	0	0	0	0.000
	Incentive	0	0	0	0	0.000
1992	Energy Review	1	1	0	0	0.000
	Motor Rebate	3	3	0	0	0.000
	Incentive	2	2	396,741	793	0.091
1993	Energy Review	1	2	0	0	0.000
	Motor Rebate	3	6	0	0	0.000
	Incentive	8	10	633,874	5,864	0.669
1994	Energy Review	2	4	0	0	0.000
	Motor Rebate	2	8	0	0	0.000
	Electric League Motor	17	17	2,590	44	0.005
	Incentive	12	22	316,330	9,660	1.103
1995	Energy Review	2	6	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	165	182	3,692	653	0.075
	Incentive	10	32	1,410,929	23,770	2.713
1996	Energy Review	1	7	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	142	324	2,996	1,079	0.123
	Incentive	17	49	547,459	33,077	3.776

(Cont'd.)

ENERGY $AVINGS PLAN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY $AVINGS PLAN PROGRAM
— Completed Projects —

(Continued)

Year	Completed Project Type	Projects by Year (5)	Cumulative Projects	kWh Savings Per Project	MWh Savings in Year (6)	Avg. MW Load Reduction in Year
Projects Completed:						
1997	Energy Review	0	7	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	13	337	3,645	1,126	0.129
	Incentive	9	58	503,041	37,604	4.293
1998	Facility Assessment	9	9	22,343	201	0.023
	Energy Review	0	7	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	5	63	483,209	40,020	4.568
1999	Facility Assessment	9	18	22,343	402	0.046
	Energy Review	1	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	4	67	3,317,257	53,289	6.083
2000	Facility Assessment	6	24	22,343	536	0.061
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	3	70	548,270	54,934	6.271
2001	Facility Assessment	5	29	22,343	648	0.074
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	7	77	406,001	57,776	6.595
2002	Facility Assessment	4	33	22,343	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	8	85	844,630	64,533	7.367
2003	Facility Assessment	0	33	0	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	1	86	946,678	65,480	7.475

(Cont'd.)

ENERGY $AVINGS PLAN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY $AVINGS PLAN PROGRAM
— Completed Projects —

(Continued)

Year	Completed Project Type	Projects by Year (5)	Cumulative Projects	kWh Savings Per Project	MWh Savings in Year (6)	Avg. MW Load Reduction in Year
2004	Facility Assessment	0	33	0	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	1	87	8,435,627	73,915	8.438
2005	Facility Assessment	0	33	0	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	0	87	8,435,627	73,915	8.438
2006	Facility Assessment	0	33	0	737	0.084
	Energy Review	0	8	0	0	0.000
	Motor Rebate	0	8	0	0	0.000
	Electric League Motor	0	337	0	1,126	0.129
	Incentive	0	87	8,435,627	73,915	8.438
Potential Electricity Savings Since Start of Program:					668,545	MWh
Total Program:						
1988	All Types	0	0	—	0	0.000
1989	All Types	1	1	—	927	0.106
1990	All Types	1	2	—	2,852	0.326
1991	All Types	1	3	—	3,063	0.350
1992	All Types	8	11	—	6,960	0.795
1993	All Types	12	23	—	12,031	1.373
1994	All Types	33	56	—	15,871	1.812
1995	All Types	177	233	—	30,590	3.492
1996	All Types	160	393	—	40,322	4.603
1997	All Types	22	415	—	44,897	5.125
1998	All Types	14	429	—	47,514	5.424
1999	All Types	14	443	—	60,984	6.962
2000	All Types	9	452	—	62,763	7.165
2001	All Types	12	464	—	65,717	7.502
2002	All Types	12	476	—	72,563	8.283
2003	All Types	1	477	—	73,510	8.392
2004	All Types	1	478	—	81,945	9.355
2005	All Types	1	478	—	81,018	9.249
2006	All Types	1	478	—	79,094	9.029
Electricity Savings Since Start of Program:					**782,622**	**MWh**

ENERGY $AVINGS PLAN PROGRAM

Program Expenditures

Program expenditures have been separated between completed projects directly funded by the BPA, and completed projects that were jointly funded by City Light and the BPA.

City Light expended a total of $12,921,411 on *E$P* projects completed from 1988 through 2004. Of this amount, $5,386,821 were expended for administrative costs, including assistance to the BPA for completing their direct-funded projects, and $7,553,590 of incentives were paid to participants for jointly-funded projects totally or partially completed during that time period. Total expenditures by City Light during 2004 of $391,040 represent the cost to the utility and not the total resource cost.

SEATTLE CITY LIGHT PROGRAM EXPENDITURES FOR THE ENERGY $AVINGS PLAN PROGRAM (7)

Year	*Administration*	*Incentive Payments Contracted in Year* (8)	*All Payments for Projects Completed in Year* (8)	*Actual Expenditures in Year* (8)	*Total Expenditures Joint Pgm*
1988	$8,213	$0	$0	$0	$8,213
1989	7,538	0	0	0	7,538
1990	10,727	0	0	0	10,727
1991	18,148	278,427	0	0	18,148
1992	44,376	510,377	91,962	182,163	226,539
1993	205,565	632,223	632,796	566,467	772,032
1994	375,526	1,303,439	527,787	538,751	914,277
1995	701,117	1,356,125	1,225,272	1,471,433	2,172,550
1996	883,213	1,205,896	1,185,930	1,168,440	2,051,652
1997	751,185	349,129	413,252	603,607	1,354,792
1998	577,490	609,582	357,320	357,320	934,810
1999	697,987	231,442	1,076,403	1,076,403	1,774,390
2000	525,702	125,272	215,505	55,694	581,396
2001	452,462	1,142,419	368,974	328,669	781,131
2002	91,707	0	640,226	680,720	772,427
2003	7,746	0	142,002	142,002	149,748
2004	9,119	0	381,921	381,921	391,040
2005-2006	0	0	0	0	0
TOTAL	**$5,367,821**	**$7,744,331**	**$7,259,350**	**$7,553,590**	**$12,921,411**

ENERGY $AVINGS PLAN PROGRAM

Expenditures for serving industrial Facility Assessment participants in 1997-2001, totaling $120,957, are included in administrative costs for these years. By year, these FA service costs were $13,761 in 1997, $41,392 in 1998, $15,749 in 1999, $41,698 in 2000, and $8,357 in 2001. FA expenses for *commercial* customers in 1997-2001 were charged to the Energy Smart Design Program budget; for more information, see the *ESD* entry in this report. Beginning in 2002, FA costs for both industrial and commercial facilities are included in administrative costs of the *Energy Smart Services Program*.

Between 1988 and 1999, the BPA reimbursed to City Light $4,597,042 for completed jointly-funded projects. Payments to customers for BPA direct-funded projects completed from 1988 through 1992 totaled an additional $413,827.

BPA FUNDING / REIMBURSEMENT TO SEATTLE CITY LIGHT FOR THE ENERGY $AVINGS PLAN PROGRAM (9)

Year	*Administration*	*Measures*	*Total Funding*
1991	$0	$0	$0
1992	1,640	136,272	137,912
1993	41,082	463,374	504,456
1994	56,356	536,700	593,056
1995	40,000	1,327,049	1,367,049
1996	0	1,154,526	1,154,526
1997	0	508,336	508,336
1998	0	169,707	169,707
1999	0	162,000	162,000
2000-2006	0	0	0
Total	**$139,078**	**$4,457,964**	**$4,597,042**

ENERGY $AVINGS PLAN PROGRAM

BPA DIRECT PAYMENTS TO SEATTLE CITY LIGHT CUSTOMERS FOR THE ENERGY $AVINGS PLAN PROGRAM (10)

Year	Payments to Participants		Total Payments
	Contracted BPA-Direct	Completed BPA-Direct	
1988	$133,571	$0	$0
1989	97,260	35,826	35,826
1990	95,581	97,745	97,745
1991	87,415	97,260	97,260
1992	0	182,996	182,996
1993-2006	0	0	0
Total	**$413,827**	**$413,827**	**$413,827**

Notes

1. The eligible population figures are from the *Seattle City Light 2001 Annual Report.*

2. There is considerable variability in the lifetime of the conservation measures installed by participants in *E$P*. For example, the lifetime for energy efficient fluorescent lamps is short, averaging nine years, while the lifetime of a parabolic fixture can range from nine to as many as forty years. Variable speed DC motors can perform within a range of twelve to twenty-five years. (See "Use of Commercial Energy Efficiency Measure Service Life Estimates In Program and Resource Planning", in *Proceedings of the 1988 ACEEE Summer Study on Energy Efficiency in Buildings*, vol. 3, pp. 3.84-3.96.) The 16 year conservation measures lifetime presented in this report is an average of the lifetimes for different measures.

3. The final *E$P* project, paid in February 2004, was contracted in 2001 at Nucor Steel (formerly Birmingham Steel, project ID# 8001).

4. ACE savings are based on post-service interviews of twelve customers who participated in the Air Compressor Efficiency project. For more information, see the *Air Compressor Efficiency (ACE) Service: Customer & Staff Feedback Survey*.

   The source of non-incentive savings data is the "non-incentive table" of the Commercial / Industrial Tracking System (CITS). Excluding ACE projects, non-incentive savings in industrial facilities were 717 MWh (1997); 0 MWh (1998); 12,972 MWh (1999); 1,144 MWh (2000); and 738 MWh (2001). Over the period 1996-2001, non-incentive industrial project savings reduced the City Light energy load by 2.98 aMW. ACE project savings were 9,244 MWh (1997).

   Apart from ACE projects, in 1997 non-incentive projects with industrial customers yielded 717 MWh, (including 316 MWh from Facility Assessments and Follow-ups). In 1998 no non-incentive industrial savings were recorded. In 1999 non-incentive projects yielded 3,580 MWh, savings of 8,109 MWh resulted from the BPA's Conservation Resource Acquisition program, and 1,282 MWh were obtained from other industrial services. During 2000, 1,143 MWh were obtained from non-incentive operations and maintenance services. Savings achieved through non-incentive *E$P* services to industrial facilities were 738 MWh in 2001.

ENERGY $AVINGS PLAN PROGRAM

5. Data on the number of contracted and completed projects by year were obtained from the Commercial/ Industrial Tracking System and from "Energy Savings Plan, Installed Measures for Seattle City Light Customers" (Autherine Brown, BPA Puget Sound Area Office).

6. The source of the energy savings for four of the five BPA-direct funded projects for 1988 through 1992 (Darigold Inc., Northwestern Industries, Seafreeze, and Associated Grocers) is a document titled Energy Savings Plan Installed Measures for Seattle City Light Customers, Autherine Brown, BPA Puget Sound Area Office, 1993). Energy savings for the remaining BPA-direct funded project (Ball-Incon) was taken from an evaluation report titled, Impact Evaluation of an Adjustable Speed Drive Installed at Ball-Incon Glass Packaging Corporation Under the Energy $avings Plan (Pacific Northwest Laboratory–PNL, May 1993). The sources for City Light project energy savings are the *E$P* "Completion Report" and the *E$P* Industrial Tracking System. Savings estimates for Holnam Industries, projects 1, 3, 4 and 6, were taken from PNL's report, Impact Evaluation of an Energy $avings Plan Project at Holnam Incorporated (May 1993).

   A total of five *E$P* projects completed between 1989 and 1992 were funded directly between the BPA and industrial customers in the Seattle area. Energy savings were not estimated for the original motor rebate program projects completed between 1992 and 1994. However, in 1994 City Light joined with the Electric League in a new motor rebate program and energy savings began to be estimated. City Light contributed to a revolving fund account with the Electric League (administered by Tacoma Public Utilities) to pay the rebates.

   Energy audits are advisory and therefore do not result in energy savings, unless the customer decides to follow-up on the audit by completing an incentive project.

   First year energy savings from new participants completing work in each year were: 927 MWh (1989); 1,925 MWh (1990); 212 MWh (1991); 3,897 MWh (1992); 5,071 MWh (1993); 3,840 MWh (1994); 14,718 MWh (1995); 9,732 MWh (1996); 4,575 MWh (1997); 2,617 MWh (1998); 13,470 MWh (1999); 1,779 MWh (2000); 2,954 MWh (2001); 6,846 MWh (2002); 947 MWh (2003); and 8,436 MWh (2004).

   In addition to these first year savings from *E$P*-completed projects, a portion of Energy Smart Design (*ESD*) program savings result from energy conservation measures installed in industrial facilities. These *ESD*-funded measures were largely for lighting, HVAC equipment, and other measures not directly related to industrial processes. The 56,231 MWh of 2003 *ESD* program savings in industrial facilities were extracted from the C-I Tracking System database. These savings have been adjusted to reflect the realization rate for *ESD* projects in new construction (realization factor = 0.49) and in existing buildings (realization factor = 0.95). Corrected *ESD* savings in industrial settings, by year, were: 111 MWh (1991); 717 MWh (1992); 3,379 MWh (1993); 959 MWh (1994); 2,541 MWh (1995); 857 MWh (1996); 1,681 MWh (1997); 3,691 MWh (1998); 3,292 MWh (1999); 12,502 MWh (2000); 14,392 MWh (2001); 6,127 MWh (2002); 5,982 MWh (2003); and 0 MWh (2004). These contracted and completed energy savings are reported under the Energy Smart Design Program.

7. Information on the costs in 1988-1990 for City Light administration and payments for jointly funded, contracted and completed projects were obtained from monthly or annual Cost Ledger Reports for Work Order Nos. 70559-01 and 70559-02. In 1991-2004 cost data for Activity/Work Order Nos. 70559 and 70589 were drawn from Seattle Financial Management System and Summit System reports. In 1994-2004 payments for contracted projects were obtained from the *E$P* tracking system.

   In 1992 one of the BPA direct-funded projects (Associated Grocers) was partially funded through *E$P* ($87,415, or 74% of total participant payments for this project), with the remainder ($31,000, or 26%)

ENERGY $AVINGS PLAN PROGRAM

coming from City Light's *Industrial Research and Demonstration Project.* Expenditures and a proportionate amount of verified energy savings have been assigned to these two programs.

Administrative costs for 1995-2004 include an A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours. In 1993 the A&G overhead charge for the *E$P* was $44,156, or 21% of Seattle City Light's total programmatic administrative expenditures. In 1994 the A&G overhead charge was $84,383 (22%), while in 1995 the A&G overhead charge was $171,387 (24%).

8. Incentive payments for contracted projects represent the projected cost of payments for participating projects under contract with Seattle City Light. The costs identified as "all payments for projects completed in year" represent all customer incentives for projects completing installation during the year. These incentives were paid over the life of the project, and include any partial payments actually made in a prior year. The amounts of these project-life incentive payments to customers were obtained from financial records in the Commercial–Industrial Section, Energy Management Services Division. The "actual expenditures in year" represent monies spent in the calendar year for projects receiving partial or full incentives during the year; some of these projects may have received an earlier partial payment, or be scheduled to receive another partial payment in a future year. Total expenditures are reported here as the sum of administration costs plus actual incentive payments in the year.

   In 2000, reimbursement from one customer was received for a program measure later removed and returned to the manufacturer. This measure was contracted in 1998 with installation completed in 1999. The total expenditures in those years still include the cost of this measure ($32,340) to reflect actual program activities at the time; however, actual expenditures in 2000 have been reduced by that amount. Total measures installed in 2000 cost $88,034.

9. Data on BPA reimbursements to City Light for administration and payments to program participants, whether financed by third parties or not, were taken from Commercial–Industrial Section records of invoices sent to the BPA. From the period 1988 through 1991, all completed *E$P* projects were funded directly between the BPA and the participating industrial customer. In 1992 the BPA began reimbursing City Light for up to 75% of its incentive payments to participants. Starting in BPA's Fiscal Year 1993 (10/01/92), the BPA began reimbursing City Light for 100% of its incentive payments to participants.

   The BPA ceased funding to Seattle City Light for *E$P* projects contracted since January 1, 1997. Reimbursements received from the BPA during 1997 and thereafter were for *E$P* projects contracted prior to January 1, 1997 but not completed (and customers paid) until some time after that date.

10. Payments to participants for contracted and completed projects directly funded by the BPA were obtained from "Energy Savings Plan, Installed Measures for Seattle City Light Customers" (Autherine Brown, BPA Puget Sound Area Office).

ENERGY SMART DESIGN PROGRAM

Description

The Energy Smart Design Program (*ESD*) was discontinued in 2003, as the last contracts authorized under this program were completed or otherwise terminated. In 2002 a new entity, Energy Smart Services, subsumed the former *ESD* and Energy Savings Plan (*E$P)* programs. New industrial and commercial projects (including Facility Assessments) contracted in 2002-2004 are documented in the Energy Smart Services program entry of this report (see SECTION III: ACTIVE COMMERCIAL-INDUSTRIAL PROGRAMS). No new *ESD* projects were contracted in 2002-2004. Sixteen *ESD* projects contracted prior to 2002 were completed during 2003 and are included in the completed project tables for this program

Seattle City Light first implemented the Bonneville Power Administration's Energy Smart Design Program in 1988. In that year the program's Design Assistance option began offering technical and financial assistance to building owners and developers, for designing conservation measures to increase the energy efficiency of new and remodeled commercial buildings. The energy efficiency alternatives identified in these analyses could be installed at the option of the building owner.

In 1991 the Energy Smart Design Program was expanded to include financial assistance for installing conservation measures in both new and existing buildings. Customers could participate in the Rebate option for the most common lighting, motor, and heating-ventilating-air conditioning (HVAC) measures. The rebates were offered to customers to pay a standard, fixed amount for the installation of energy-efficiency equipment in buildings. Site-based Incentives were also available to customers for conservation measures not included on the rebate list.

In October 1993, the *ESD* program was redesigned so that two types of incentives could be offered to customers for installing conservation measures in their buildings. The first type, Standard Incentives, was for lighting, HVAC system, and motor measures. Custom Incentives were also available to customers for building envelope measures, energy management control systems, and other measures not covered by Standard Incentives.

Beginning in 1994, Tailored Agreements were also reached with four large customers to install efficiency measures in multiple, complex sites: the University of Washington, Seattle Public Schools, City of Seattle, and King County.

The Facility Assessment (FA) Audit, formerly known as the Operations and Resource Assessment Service, was first offered in 1997 to City Light's commercial and industrial customers. The no-cost service was designed to help customers manage their operating costs and

ENERGY SMART DESIGN PROGRAM

identify specific action items that can reduce both energy and non-energy (e.g., water) usage. Services provided to customers through the program included a resource-use audit at the customer's facility, a report which included recommended actions for reducing the use of electricity, water, and other resources at the facility, and a joint City Light–Customer Action Plan for implementing report recommendations.

The *ESD* 10+10 Incentive Bonus program was launched in mid-January 2001 to stimulate customers to install conservation improvements through the *ESD* program. The two-part bonus provided a 10% extra incentive for customers who contracted with City Light for retrofit projects by July 31, 2001 and a second 10% bonus if they completed their projects by November 30, 2001. By year-end 2001, City Light signed 337 new *ESD* contracts, nearly triple the 135 incentive projects contracted in 2000. During 2001 the increased demand for conservation and the expanded budget and staff resources needed to achieve the higher savings goals resulted in the largest number of contracted projects since 1992 and the largest total first-year savings (63,000 MWh) in the history of the *ESD* program at City Light.

Also in 2001, City Light engaged a consultant to deliver building tune-up services to six large commercial customers. Working with the Account Executives Office, staff marketed this service to selected buildings to help customers identify immediate Operations and Maintenance savings opportunities.

For information regarding the $mart Business program for small commercial businesses, formerly reported with the Energy Smart Design Program, see the *$mart Business Programs* entry in this report.

Eligible Population

The *ESD* program focused on new and existing commercial, institutional, and government buildings; the program also served non-process end uses in industrial facilities. In 2001, Seattle City Light had 1,7764 government and 30,934 commercial accounts (of which about 16% qualified for *ESD* services, the remainder being small commercial accounts). (1)

Lifetime of Conservation Measures Installed

The lifetimes of the measures range from 5 to 35 years, depending on the type of measure. The average lifetime of *ESD* new construction and retrofit project measures is 15 years.

ENERGY SMART DESIGN PROGRAM

Electricity Savings

This section contains two tables. The first depicts projects contracted by City Light during the calendar year. This table shows the potential energy savings that would be realized when the projects are completed. Commercial projects may take up to three years to move from contract to completion. The first table shows some projects which were subsequently terminated. The second table presents savings realized from projects completed during the calendar year, and from cumulative participants.

Note that the energy savings (both MWh and aMW) reported in both tables reflect savings from current year participants as well as savings in that year from all prior participants for whom the measure lifetime has not yet expired. For a description of first-year savings from current year participants only, see the referenced footnotes. The line titled "electricity savings since start of program" sums savings across all the years from program inception through the current reporting year. This illustrative construct exceeds the actual savings experienced in any given calendar year.

The following tables document savings from all *ESD* projects. Since 1989, *ESD* has saved a total of 3,988,695 megawatt-hours (MWh). In 2006 the energy savings from cumulative (1989-2003) completed projects, including financed and facility assessment projects, were 393,956 MWh. The load reduction in 2006 due to this program was 44.972 average megawatts (aMW). Following are more details about financed projects, facility assessments, and non-incentive projects.

Financed Projects: Energy savings are presented for 2,512 projects contracted in the 1989-2001 period. Based on an evaluation of the *ESD* program, savings projected by engineering calculations were reduced by 5% for retrofit projects and 51% for new construction projects. Although no new *ESD* projects have been contracted since 2001, amendments were executed in 2002 for five projects contracted in 2001. Energy savings and expenditures for these five amendments have been added to 2001 contracted savings and expenditures. As of 2003, the cumulative savings expected from all contracted *ESD* projects totaled 454,693 MWh, or 51.906 aMW.

Energy savings are estimated for 2,360 projects completed in 1991 through 2003 (some customers having conducted multiple projects over that time span). Projects and their associated energy savings were not counted as completed until the year in which the participating customer receives their final incentive payment. As with contracted projects, the projected savings were reduced by 5% for retrofit projects and 51% for new construction projects. With this adjustment, energy savings for *ESD* projects completed during 2003 were 10,086 MWh, or 1.152 aMW.

A small portion of the *ESD* energy savings result from installing energy conservation measures in industrial facilities. The measures installed were largely lighting, HVAC, and other measures not directly related to industrial processes. During the years 1991 through 2003, the total savings

ENERGY SMART DESIGN PROGRAM

from these conservation measures were 56,231 MWh, amounting to 14% of total *ESD* savings. Additional information on these projects can be found in Note 4, below, and in the *Energy $avings Plan Program* entry in SECTION V.

ESD energy savings also result from providing conservation measure incentives over the period 1994-2002 to four Tailored Agreement customers. Measures were installed in multiple facilities over several years for each of these customers; a total of seven contracts were involved (one was later terminated, in May 2002). Energy savings from these projects were recorded in the energy savings tables as work in each facility was begun and completed. However, the six contracts were noted under "projects by year" when the full complement of work under each was completed. During 2002, the last of the six Tailored Agreement contracts was completed, with cumulative energy savings of 58,480 MWh, or 6.676 aMW.

University of Washington. In May 1999, City Light and the University of Washington celebrated the ceremonial completion of a major Tailored Agreement spanning five years (the final incentive payment as made in March 2000). In 2002 the final Tailored Agreement project was completed at the University of Washington. In all, this agreement realized 34,326 MWh in annual savings, or 3.9 aMW of load reduction, produced from $4.8 million dollars in City Light incentive payments. This very successful partnership resulted from management support and teamwork in both organizations.

Seattle Public Schools. From 1996 through 2000, a total of 16,301 MWh of energy savings have been realized from measures installed as part of Tailored Agreements in Seattle Public Schools, resulting in 1.86 aMW of load reduction. The Seattle Public Schools Tailored Agreement was completed in 2000.

King County Efficiency Projects. From 1998 through 2001, a total 4,150 MWh of energy savings have been developed from measures installed in King County facilities, resulting in 0.47 aMW of load reduction. Nearly $616,000 in incentive payments have been made for several large lighting and HVAC projects. The King County Tailored Agreement was completed in 2001.

Seattle Municipal Facilities. Between 1995 and 1998 a total of 3,703 MWh of energy savings were attained through the Tailored Agreement in City of Seattle owned buildings, at a cost of $794,828.

Facility Assessment Audit: During 1998-2002, 162 Facility Assessment (FA) reports and action plans were completed for commercial customers who participated in the service through the *ESD* program. The potential electricity savings identified in these FA audits for commercial customers were 68,848 MWh, an average of 425 MWh per site. Beginning in 2003, all new industrial and commercial projects, including FA projects, appear in the electricity savings tables of the Energy Smart Services (*ESS*) program entry.

ENERGY SMART DESIGN PROGRAM

Realization of these savings is dependent on customers arranging appropriate financing and installing the conservation measures in the facilities. This financing can be done by the customers themselves or through the *ESD, E$P*, and *ESS* programs offered by Seattle City Light. When the customers themselves financed these actions, the savings are presented in the completed savings table under the Facility Assessment category. Between 1998 and 2002, an estimated 3,620 MWh of savings from cumulative participants were financed by commercial FA customers through the *ESD* program. Savings financed by City Light through the *ESD, E$P*, and *ESS* programs are presented in the table under the relevant program component (e.g., Standard Incentive).

A comprehensive evaluation of the FA audit service was completed in May 2000. The electrical savings realization rate for the evaluation sample was 41%, with commercial building savings of 7,274,689 kWh. About three-fourths of the savings were obtained by FA participants who subsequently took part in City Light's *ESD* and *E$P* programs. The remaining one-fourth of the commercial building savings, 1,930,061 kWh, came from FA participants who took recommended conservation actions on their own.

Most customers who participated in FA services were referred to one or more additional City Light services. Program records indicate that, from 1998 through 2003, 75% of FA participants were referred to the financial incentives available for conservation measures installed through the *ESD* or *E$P* programs. Participants were also referred to a variety of City services, including the Water Smart Technology Program offered by Seattle Public Utilities, City Light's non-incentive services, power factor and power quality correction services, and to the appropriate City Light staff to resolve billing or rate questions. (For more information about Facility Assessments, see the *Energy $avings Plan Program* entry in SECTION V.)

Non-incentive Projects: Electrical energy savings are also achieved by customers who receive facility assessments or technical assistance from City Light, and then install conservation measures at their own expense in their facilities. These measures consist of both equipment replacement, and operation and maintenance actions. Non-incentive savings occurring in *commercial* facilities between 1996 and 2001 are shown below, but do not appear in the contracted or completed savings tables. Non-incentive savings acquired in *industrial* facilities during this period are discussed in the *E$P* program entry. Beginning in 2002 and thereafter, all non-incentive savings in both the commercial and industrial sectors are included in the Energy Smart Services (*ESS*) program entry.

In 1996-2001, some non-incentive project customers took Air Compressor Efficiency (ACE) conservation actions estimated to have annual energy savings of 11,200 MWh. Of these total ACE savings, 1,956 MWh were acquired in commercial facilities and 9,244 MWh in industrial facilities. The majority of these savings were revealed in an evaluation of the ACE service conducted in early 1998. Another 639 MWh in savings from ACE recommendations were verified and recorded in 2000. The 1998 evaluation showed that the service was generally well received, with an overall customer satisfaction rating of 4.4, where 5 represents "very satisfied".

ENERGY SMART DESIGN PROGRAM

In addition to the 1,956 MWh in ACE savings, during the period 1996-2001, commercial customers took non-incentive conservation actions that were estimated to have annual energy savings of 10,219 MWh. (2) About 66% of these savings result from equipment replacements, with the remaining 34% being operation and maintenance actions. These savings are not included in the following *ESD* savings tables. For a summary of non-incentive energy savings, see *Table 12: Seattle City Light Conservation Plan Accomplishments*, in SECTION I: SUMMARY OF ACCOMPLISHMENTS AND EXPENDITURES.

ENERGY SMART DESIGN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY SMART DESIGN PROGRAM
— Contracted Projects —

Year	*Projects by Year* (3)	*Cumula-tive Projects*	*Sq. Ft. of Buildings*	*kWh Savings per Project*	*MWh Savings in Year* (4)	*Avg. MW Load Reduction in Year*
Design Assistance Services:						
1989	12	12	2,788,583	0	0	0.000
1990	22	34	2,964,698	0	0	0.000
1991	44	78	4,946,564	0	0	0.000
1992	58	136	8,683,173	0	0	0.000
1993	13	149	1,748,000	0	0	0.000
1994	10	159	1,799,500	0	0	0.000
1995	6	165	302,500	0	0	0.000
1996	4	169	750,560	0	0	0.000
1997	4	173	166,634	0	0	0.000
1998	11	184	258,000	0	0	0.000
1999	5	189	130,000	0	0	0.000
2000	8	197	491,105	0	0	0.000
2001	6	203	1,164,342	0	0	0.000
2002-2006	0	203	—	0	0	0.000
Design Document Services:						
1991	2	2	81,504	0	0	0.000
1992	1	3	450,000	0	0	0.000
1993	0	3	—	0	0	0.000
1994	0	3	—	0	0	0.000
1995	0	3	—	0	0	0.000
1996	2	5	310,000	0	0	0.000
1997	0	5	—	0	0	0.000
1998	0	5	—	0	0	0.000
1999	0	5	—	0	0	0.000
2000	0	5	—	0	0	0.000
2001	0	5	—	0	0	0.000
2002-2006	0	5	—	0	0	0.000
Commissioning Services:						
1993	1	1	1,500,000	0	0	0.000
1994	0	1	—	0	0	0.000
1995	0	1	—	0	0	0.000
1996	1	2	766,796	0	0	0.000
1997	1	3	527,800	0	0	0.000
1998	3	7	1,000,000	0	0	0.000
1999	0	7	1,063,000	0	0	0.000
2000	0	7	—	0	0	0.000
2001	0	7	—	0	0	0.000
2002-2006	0	7	—	0	0	0.000

(Cont'd.)

ENERGY SMART DESIGN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY SMART DESIGN PROGRAM
— Contracted Projects —

(Continued)

Year	*Projects by Year* (3)	*Cumula-tive Projects*	*Sq. Ft. of Buildings*	*kWh Savings per Project*	*MWh Savings in Year* (4)	*Avg. MW Load Reduction in Year*
Rebate Option & Standard Incentive Services:						
1991	126	126	17,215,727	149,289	18,810	2.147
1992	242	368	23,342,444	91,193	40,879	4.667
1993	173	541	16,007,094	170,697	70,410	8.038
1994	183	724	11,330,862	154,479	98,679	11.265
1995	203	927	16,323,787	136,669	126,423	14.432
1996	116	1,043	10,116,063	121,516	140,519	16.041
1997	155	1,198	11,154,289	92,739	154,894	17.682
1998	120	1,318	9,676,929	117,076	168,943	19.286
1999	103	1,421	13,383,704	78,234	177,001	20.206
2000	84	1,505	6,269,275	182,509	192,332	21.956
2001	219	1,724	9,480,155	169,959	229,553	26.205
2002	0	1,724	—	0	229,553	26.205
2003	0	1,724	—	0	229,553	26.205
2004	0	1,724	—	0	229,553	26.205
2005	0	1,724	—	0	229,553	26.205
2006	0	1,724	—	0	210,743	24.057
Site-based & Custom Incentive Services:						
1991	12	12	924,499	660,466	7,926	0.905
1992	56	68	9,901,980	324,331	26,088	2.978
1993	77	145	15,378,999	381,043	55,428	6.327
1994	31	176	3,885,104	275,290	63,962	7.302
1995	28	204	1,403,707	350,704	73,782	8.423
1996	15	219	3,071,116	404,751	79,853	9.116
1997	20	239	5,461,447	539,105	90,636	10.347
1998	28	267	3,669,529	610,796	107,738	12.299
1999	23	290	5,879,969	210,099	112,570	12.850
2000	23	313	4,402,558	237,437	118,031	13.474
2001	92	405	26,755,246	290,818	144,786	16.528
2002	0	405	—	0	144,786	16.528
2003	0	405	—	0	144,786	16.528
2004	0	405	—	0	144,786	16.528
2005	0	405	—	0	144,786	16.528
2006	0	405	—	0	136,860	15.623

(Cont'd.)

ENERGY SMART DESIGN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY SMART DESIGN PROGRAM
— Contracted Projects —

(Continued)

Year	*Projects by Year* (3)	*Cumula-tive Projects*	*Sq. Ft. of Buildings*	*kWh Savings per Project*	*MWh Savings in Year* (4)	*Avg. MW Load Reduction in Year*
Tailored Agreement Services:						
1994	1	1	—	—	23,007	2.626
1995	0	1	—	—	35,948	4.104
1996	4	5	—	—	63,662	7.219
1997	0	5	—	—	65,847	7.517
1998	0	5	—	—	66,609	7.604
1999	1	6	—	—	70,361	8.032
2000	0	6	—	—	76,735	8.760
2001	0	6	—	—	76,735	8.760
2002	0	6	—	—	76,735	8.760
2003	0	6	—	—	76,735	8.760
2004	0	6	—	—	76,735	8.760
2005	0	6	—	—	76,735	8.760
2006	0	6	—	—	76,735	8.760
Facility Assessments:						
1997	10	10	—	22,343	223	0.026
1998	62	72	—	22,343	1,609	0.184
1999	42	114	—	22,343	2,547	0.291
2000	20	134	—	22,343	2,994	0.342
2001	28	162	—	22,343	3,620	0.413
2002	0	162	—	22,343	3,620	0.413
2003	0	162	—	22,343	3,620	0.413
2004	0	162	—	22,343	3,620	0.413
2005	0	162	—	22,343	3,620	0.413
2006	0	162	—	22,343	3,620	0.413
Total Program (all service types):						
1989	12	12	2,788,583	—	0	0.000
1990	22	34	2,964,698	—	0	0.000
1991	184	218	23,168,294	—	26,736	3.052
1992	357	575	42,377,597	—	66,967	7.645
1993	264	839	34,634,093	—	125,838	14.365
1994	225	1,064	17,015,466	—	185,649	21.193
1995	237	1,301	18,029,994	—	236,153	26.958
1996	142	1,443	15,014,535	—	284,035	32.424
1997	190	1,633	17,310,170	—	311,600	35.571
1998	222	1,855	14,604,458	—	344,898	39.372
1999	177	2,032	20,456,673	—	362,479	41.379
2000	135	2,167	11,162,938	—	390,091	44.531
2001	345	2,512	37,399,743	—	454,693	51.906
2002	0	2,512	—	—	454,693	51.906
2003	0	2,512	—	—	454,693	51.906
2004	0	2,512	—	—	454,693	51.906
2005	0	2,512	—	—	454,693	51.906
2006	0	2,512	—	—	427,957	48.854
Potential Electricity Savings Since Start of Program:					**5,035,871**	**MWh**

ENERGY SMART DESIGN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY SMART DESIGN PROGRAM
— Completed Projects —

Year	*Projects by Year* (3)	*Cumula-tive Projects*	*Sq. Ft. of Buildings*	*kWh Savings per Project*	*MWh Savings in Year* (5)	*Avg. MW Load Reduction in Year*
Design Assistance Services:						
1989	2	2	538,565	0	0	0.000
1990	7	9	934,305	0	0	0.000
1991	32	41	3,215,610	0	0	0.000
1992	64	105	9,845,723	0	0	0.000
1993	26	131	3,722,122	0	0	0.000
1994	16	147	15,592,980	0	0	0.000
1995	7	154	1,362,597	0	0	0.000
1996	5	159	280,060	0	0	0.000
1997	4	163	282,000	0	0	0.000
1998	7	170	258,000	0	0	0.000
1999	5	175	794,876	0	0	0.000
2000	6	181	695,192	0	0	0.000
2001	5	186	1,224,342	0	0	0.000
2002	7	193	—	0	0	0.000
2003	1	194	—	0	0	0.000
2004-2006	0	194	—	0	0	0.000
Design Document Services:						
1991	0	0	—	0	0	0.000
1992	0	0	—	0	0	0.000
1993	1	1	450,000	0	0	0.000
1994	2	3	81,504	0	0	0.000
1995	0	3	—	0	0	0.000
1996	0	3	—	0	0	0.000
1997	1	4	135,000	0	0	0.000
1998	0	4	—	0	0	0.000
1999	0	4	—	0	0	0.000
2000	0	4	—	0	0	0.000
2001	1	5	175,000	0	0	0.000
2002-2006	0	5	—	0	0	0.000
Commissioning Services:						
1993	0	0	—	0	0	0.000
1994	1	1	1,500,000	0	0	0.000
1995	0	1	—	0	0	0.000
1996	0	1	—	0	0	0.000
1997	1	2	766,456	728,456	728	0.083
1998	0	2	—	0	728	0.083
1999	1	3	1,063,000	0	728	0.083
2000	2	5	852,800	0	728	0.083
2001	2	7	513,000	0	728	0.083
2002	0	7	—	0	728	0.083
2003	0	7	—	0	728	0.083
2004	0	7	—	0	728	0.083
2005	0	7	—	0	728	0.083
2006	0	7	—	0	728	0.083

(Cont'd.)

ENERGY SMART DESIGN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY SMART DESIGN PROGRAM
— Completed Projects —

(Continued)

Year	*Projects by Year* (3)	*Cumula-tive Projects*	*Sq. Ft. of Buildings*	*kWh Savings per Project*	*MWh Savings in Year* (5)	*Avg. MW Load Reduction in Year*
Rebate Option & Standard Incentive Services:						
1991	72	72	5,229,185	104,707	7,539	0.861
1992	200	272	20,930,065	71,878	21,915	2.502
1993	164	436	14,420,997	94,587	37,427	4.272
1994	172	608	11,764,710	157,636	64,540	7.368
1995	180	788	11,075,268	132,959	88,473	10.100
1996	135	923	13,416,958	165,234	110,779	12.646
1997	144	1,067	12,423,060	99,426	125,097	14.280
1998	110	1,177	9,588,572	141,077	140,615	16.052
1999	106	1,283	14,432,353	119,934	153,328	17.503
2000	77	1,360	5,199,309	118,324	162,439	18.543
2001	188	1,548	13,419,842	163,842	193,241	22.060
2002	44	1,592	—	244,898	204,017	23.290
2003	10	1,602	—	349,055	207,508	23.688
2004	0	1,602	—	349,055	207,508	23.688
2005	0	1,602	—	349,055	207,508	23.688
2006	0	1,602	—	349,055	199,969	22.828
Site-based & Custom Incentive Services:						
1991	3	3	246,156	475,775	1,427	0.163
1992	35	38	2,586,477	185,687	7,926	0.905
1993	58	96	11,215,581	337,562	27,505	3.140
1994	48	144	9,077,942	383,975	45,936	5.244
1995	26	170	3,207,688	348,216	54,989	6.277
1996	26	196	4,039,782	387,923	65,075	7.429
1997	10	206	2,886,602	287,418	67,950	7.757
1998	22	228	3,402,245	673,744	82,772	9.449
1999	25	253	12,670,083	152,571	86,586	9.884
2000	23	276	10,010,663	607,028	100,548	11.478
2001	70	346	10,164,850	214,229	115,544	13.190
2002	33	379	—	316,556	125,990	14.382
2003	5	384	—	1,319,109	132,586	15.135
2004	0	384	—	1,319,109	132,586	15.135
2005	0	384	—	1,319,109	132,586	15.135
2006	0	384	—	1,319,109	131,159	14.972

(Cont'd.)

ENERGY SMART DESIGN PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY SMART DESIGN PROGRAM
— Completed Projects —

(Continued)

Year	*Projects by Year* (3)	*Cumula-tive Projects*	*Sq. Ft. of Buildings*	*kWh Savings per Project*	*MWh Savings in Year* (5)	*Avg. MW Load Reduction in Year*
Tailored Agreement Services:						
1998	0	0	—	—	0	0.000
1999	0	0	—	—	1,747	0.199
2000	0	0	—	—	8,704	0.994
2001	0	0	—	—	13,230	1.510
1998	0	0	—	—	33,765	3.854
1999	1	1	—	—	48,111	5.492
2000	3	4	—	—	56,143	6.409
2001	1	5	—	—	56,583	6.459
2002	1	6	—	—	58,480	6.676
2003	0	6	—	—	58,480	6.676
2004	0	6	—	—	58,480	6.676
2005	0	6	—	—	58,480	6.676
2006	0	6	—	—	58,480	6.676
Facility Assessments:						
1998	48	48	—	22,343	1,072	0.122
1999	58	106	—	22,343	2,368	0.270
2000	21	127	—	22,343	2,838	0.324
2001	20	147	—	22,343	3,284	0.375
2002	15	162	—	22,343	3,620	0.413
2003	0	162	—	0	3,620	0.413
2004	0	162	—	0	3,620	0.413
2005	0	162	—	0	3,620	0.413
2006	0	162	—	0	3,620	0.413
Total Program (all service types):						
1989	2	2	538,565	—	0	0.000
1990	7	9	934,305	—	0	0.000
1991	107	116	8,690,951	—	8,966	1.024
1992	299	415	33,362,265	—	29,841	3.406
1993	249	664	29,808,700	—	64,932	7.412
1994	239	903	38,017,136	—	110,476	12.611
1995	213	1,116	15,645,553	—	145,209	16.576
1996	166	1,282	17,736,800	—	184,558	21.068
1997	160	1,442	16,493,118	—	207,004	23.631
1998	187	1,629	13,248,817	—	258,953	29.561
1999	196	1,825	28,960,312	—	291,122	33.233
2000	132	1,957	16,757,964	—	322,696	36.837
2001	287	2,244	26,296,034	—	369,382	42.167
2002	100	2,344	—	—	392,835	44.844
2003	16	2,360	—	—	402,922	45.996
2004	0	2,360	—	—	402,922	45.996
2005	0	2,360	—	—	402,922	45.996
2006	0	2,360	—	—	393,956	44.972
Electricity Savings Since Start of Program:					**3,988,695**	**MWh**

ENERGY SMART DESIGN PROGRAM

Program Expenditure

Administrative expenditures and participant payments for partial or completed projects totaled $91,361,049 from 1988 through 2003. During 2003, total expenditures were $1,407,456. The sum of Tailored Agreement incentive payments made to date (1995-2002) is $8,400,496. The energy savings for these projects are included in the table of energy savings from completed projects.

Expenditures to provide consultant field services in support of commercial Facility Assessment participants in 1997-2001, totaling $633,276, are included in administrative expenditures for these years. FA expenses for *industrial* customers were charged to the Energy $avings Plan Program budget; for more information, see the *E$P* entry in this report. Beginning in 2002, FA costs for both commercial and industrial facilities are included in administrative costs of the Energy Smart Services Program.

PROGRAM EXPENDITURES FOR THE ENERGY SMART DESIGN PROGRAM (6)

			Incentive Payments to Participants			
Year	***Project Type***	***Admini-stration***	***Contracted Projects*** (7)	***All Payments for Projects Completed in Year*** (7)	***Actual Expenditures in Year***	***Total Expenditures***
1988	Design Assistance	$19,137	$0	$0	$0	$19,137
1989	Design Assistance	59,383	196,416	8,151	11,901	71,284
1990	Design Assistance	190,125	391,046	107,427	107,427	297,552
1991	Design Assistance		593,374	137,640	446,610	
	Rebate Option		3,529,296	899,188	1,048,433	
	Site-based Incentive		1,570,085	199,082	199,082	
	Annual Total	565,117	5,692,755	1,235,910	1,694,125	2,259,242
1992	Design Assistance		722,374	847,017	815,861	
	Rebate Option		3,747,262	2,413,798	2,405,961	
	Site-based Incentive		3,315,810	1,076,187	1,157,085	
	Annual Total	881,306	7,785,446	4,337,002	4,378,907	5,260,213
1993	Design Assistance		365,122	322,184	392,234	
	Rebate Option		5,475,110	3,594,700	4,117,013	
	Incentives		6,884,695	3,082,402	3,901,856	
	Annual Total	1,333,423	12,724,927	6,999,286	8,411,103	9,744,526

(Cont'd.)

ENERGY SMART DESIGN PROGRAM

PROGRAM EXPENDITURES FOR THE ENERGY SMART DESIGN PROGRAM (5)

(Continued)

Year	Project Type	Admini-stration	Incentive Payments to Participants: Contracted Projects (7)	Incentive Payments to Participants: All Payments for Projects Completed in Year (7)	Incentive Payments to Participants: Actual Expenditures in Year	Total Expenditures
1994	Tailored Agreement		3,200,000	—	—	
	Commissioning Svcs		—	2,823	2,823	
	Design Documents		—	9,978	9,978	
	Design Assistance		86,888	382,040	312,040	
	Rebate Option		0	2,992,350	4,019,837	
	Incentives		5,317,646	4,881,208	4,121,307	
	Annual Total	1,306,628	8,604,534	8,268,399	8,465,985	9,772,613
1995	Tailored Agreement		1,800,000	—	232,866	
	Commissioning Svcs		—	0	0	
	Design Documents		—	0	0	
	Design Assistance		86,017	97,462	97,462	
	Rebate Option		0	717,927	650,047	
	Incentives		5,448,189	3,992,040	4,683,268	
	Annual Total	2,206,759	7,334,206	4,807,429	5,663,643	7,870,402
1996	Tailored Agreement		4,512,369	—	906,710	
	Commissioning Svcs		47,462	0	0	
	Design Documents		19,664	0	0	
	Design Assistance		38,150	64,355	64,355	
	Rebate Option		0	8,164	8,164	
	Incentives		3,279,652	4,909,735	5,281,367	
	Annual Total	1,950,773	7,897,297	4,982,254	6,260,596	8,211,369
1997	Tailored Agreement		250,000	—	580,351	
	Commissioning Svcs		3,925	47,462	47,462	
	Design Documents		0	6,050	6,050	
	Design Assistance		45,521	48,080	48,080	
	Rebate Option		0	0	0	
	Incentives		4,415,100	2,409,089	2,682,581	
	Facilty Assmt Svcs	40,330	—	—	—	
	Other Program Svcs	1,943,722	—	—	—	
	Annual Total	1,984,052	4,714,546	2,510,681	3,364,524	5,348,576
1998	Tailored Agreement		100,222	—	2,825,007	
	Commissioning Svcs		67,055	0	0	
	Design Documents		0	0	0	
	Design Assistance		94,417	61,475	61,475	
	Rebate Option		0	359,021	215,201	
	Incentives		4,923,747	3,872,422	4,838,649	
	Facilty Assmt Svcs	145,394	—	—	—	
	Other Program Svcs	1,825,731	—	—	—	
	Annual Total	1,971,125	5,185,441	4,292,918	7,940,332	9,911,457

(Cont'd.)

ENERGY SMART DESIGN PROGRAM

PROGRAM EXPENDITURES FOR THE ENERGY SMART DESIGN PROGRAM (5)

(Continued)

Year	Project Type	Admini-stration	Incentive Payments to Participants: Contracted Projects (7)	Incentive Payments to Participants: All Payments for Projects Completed in Year (7)	Incentive Payments to Participants: Actual Expenditures in Year	Total Expenditures
1996	Tailored Agreement		4,512,369	—	906,710	
	Commissioning Svcs		47,462	0	0	
	Design Documents		19,664	0	0	
	Design Assistance		38,150	64,355	64,355	
	Rebate Option		0	8,164	8,164	
	Incentives		3,279,652	4,909,735	5,281,367	
	Annual Total	1,950,773	7,897,297	4,982,254	6,260,596	8,211,369
1997	Tailored Agreement		250,000	—	580,351	
	Commissioning Svcs		3,925	47,462	47,462	
	Design Documents		0	6,050	6,050	
	Design Assistance		45,521	48,080	48,080	
	Rebate Option		0	0	0	
	Incentives		4,415,100	2,409,089	2,682,581	
	Facilty Assmt Svcs	40,330	—	—	—	
	Other Program Svcs	1,943,722	—	—	—	
	Annual Total	1,984,052	4,714,546	2,510,681	3,364,524	5,348,576
1998	Tailored Agreement		100,222	—	2,825,007	
	Commissioning Svcs		67,055	0	0	
	Design Documents		0	0	0	
	Design Assistance		94,417	61,475	61,475	
	Rebate Option		0	359,021	215,201	
	Incentives		4,923,747	3,872,422	4,838,649	
	Facilty Assmt Svcs	145,394	—	—	—	
	Other Program Svcs	1,825,731	—	—	—	
	Annual Total	1,971,125	5,185,441	4,292,918	7,940,332	9,911,457
1999	Tailored Agreement		1,250,000	794,828	1,906,053	
	Commissioning Svcs		0	0	0	
	Design Documents		0	0	0	
	Design Assistance		88,830	40,731	50,671	
	Rebate Option		0	0	0	
	Incentives		2,919,653	2,932,277	4,157,368	
	Facilty Assmt Svcs	137,197	—	—	—	
	Other Program Svcs	2,077,268	—	—	—	
	Annual Total	2,214,465	4,258,483	3,767,836	6,114,092	8,328,557

(Cont'd.)

ENERGY SMART DESIGN PROGRAM

PROGRAM EXPENDITURES FOR THE ENERGY SMART DESIGN PROGRAM (5)

(Continued)

Year	Project Type	Administration	Incentive Payments to Participants: Contracted Projects (7)	Incentive Payments to Participants: All Payments for Projects Completed in Year (7)	Incentive Payments to Participants: Actual Expenditures in Year	Total Expenditures
2000	Tailored Agreement		80,103	6,674,616	1,479,492	
	Commissioning Svcs		0	13,925	6,925	
	Design Documents		0	0	0	
	Design Assistance		107,208	88,179	85,164	
	Rebate Option		0	0	0	
	Incentives		4,043,068	4,331,168	3,711,020	
	Facilty Assmt Svcs	187,186	—	—	—	
	Other Program Svcs	2,133,295	—	—	—	
	Annual Total	2,320,481	4,230,379	11,107,888	5,282,601	7,603,082
2001	Tailored Agreement		0	615,880	154,844	
	Commissioning Svcs		0	20,000	20,000	
	Design Documents		0	13,364	13,364	
	Design Assistance		89,485	43,587	43,587	
	Rebate Option		0	0	0	
	Incentives		11,363,053	8,252,577	8,667,337	
	Facilty Assmt Svcs	123,169	—	—	—	
	Other Program Svcs	2,752,789	—	—	—	
	Annual Total	2,875,958	11,452,538	8,945,408	8,899,132	11,775,090
2002	Tailored Agreement		0	315,173	315,173	
	Commissioning Svcs		0	0	0	
	Design Documents		0	0	0	
	Design Assistance		0	95,813	95,813	
	Rebate Option		0	0	0	
	Incentives		0	3,397,383	2,961,868	
	Facilty Assmt Svcs		—	—	—	
	Other Program Svcs		—	—	—	
	Annual Total	107,639	0	3,808,369	3,372,854	3,480,493
2003	Tailored Agreement		0	0	0	
	Commissioning Svcs		0	0	0	
	Design Documents		0	0	0	
	Design Assistance		0	23,700	23,700	
	Rebate Option		0		0	
	Incentives		0	1,604,183	1,365,377	
	Facilty Assmt Svcs		—	—	—	
	Other Program Svcs		—	—	—	
	Annual Total	18,379	0	1,627,883	1,389,077	1,407,456
2004-06	Annual Total	0	0	0	0	0
TOTAL PROGRAM		**$20,004,750**	**$80,468,014**	**$66,806,840**	**$71,356,299**	**$91,361,049**

ENERGY SMART DESIGN PROGRAM

Partial funding of the incentive and administrative costs for *ESD* projects began in 1989 through a contract between City Light and the Bonneville Power Administration; later contracts, the Third Party Financing and Flexibility Agreements, took over in 1994. BPA funding was available for all projects contracted through December 31, 1996 and completed by September 30, 1999. The last BPA reimbursement was received in 1999 for $1,479,310. BPA funding for the program from 1989 through 1999 totaled $43,753,861.

BPA FUNDING/REIMBURSEMENT FOR THE ENERGY SMART DESIGN PROGRAM (8)

Year	*Administration*	*Measures*	*Total Funding*
1988	$0	$0	$0
1989	0	34,500	34,500
1990	0	131,328	131,328
1991	0	1,453,405	1,453,405
1992	86,700	3,341,317	3,428,017
1993	1,085,163	7,790,032	8,875,195
1994	736,800	8,300,139	9,036,939
1995	588,464	6,613,122	7,201,586
1996	0	6,429,763	6,429,763
1997	0	3,178,134	3,178,134
1998	0	2,505,684	2,505,684
1999	0	1,479,310	1,479,310
2000-2006	0	0	0
Total	**$2,497,127**	**$41,256,733**	**$43,753,861**

Notes

1. The eligible population figures are from the *Seattle City Light 2001 Annual Report*.

2. The source of non-incentive savings data is the "non-incentive table" of the Commercial / Industrial Tracking System (CITS). Excluding Air Compressor Efficiency (ACE) projects, non-incentive savings in commercial facilities were 1,982 MWh (1996); 2,297 MWh (1997); 668 MWh (1998); 4,597 MWh (1999); 0 MWh (2000); and 677 MWh (2001). Over the period 1996-2001, non-incentive commercial project savings reduced the City Light energy load by 1.46 aMW. ACE project savings were 1,317 MWh (1997); and 639 MWh (2000). For more on ACE services, see the *Energy $aving Plan* entry to this report.

3. Data on the number of completed and contract-executed projects were obtained from the Commercial–Industrial Tracking System (CITS) database, maintained by the Commercial–Industrial Section. In 1995 through 2002, various stages of partial completion were reached on the multi-year Tailored Agreement contracts. In the year when all projects under a Tailored Agreement contract reached final completion, the project was counted toward cumulative projects.

   Tailored Agreement customers included the City of Seattle, King County, Seattle Public School District Number 1, and the University of Washington. The Tailored Agreements with Seattle Public Schools were

ENERGY SMART DESIGN PROGRAM

completed in 2000, resulting in 16,301 MWh of annual energy savings and 2.0 aMW of load reduction. By the close of 2000, the District had completed all lighting and fan control retrofits to 88 existing school buildings targeted by the program. Total incentives paid by City Light to the District were nearly $2.2 million. In addition, the Tailored Agreements provided financial support for the District's Resource Conservation Manager position through April 1999, saving 444,950 therms of natural gas and 139 million gallons of water annually, in addition to electrical conservation. This success prompted the District to pick up the Manager salary when City Light's funding expired. The Conservation Manager helped develop behavioral changes and Operation and Maintenance (O&M) changes in participating schools.

In 1995 the City of Seattle resolved by ordinance to take a committed approach to improve energy efficiency in municipal facilities for each department. City Light provided administrative staffing and technical expertise to the Municipal Resource Conservation Pilot Project (MRCPP). The municipal project provided resource efficiency upgrades to many City facilities from 1996 through 1999. City Light funding was provided through a Tailored Agreement with the City's Office of Environmental Management, now known as the Office of Sustainability and Environment. The agreement invested $795,000 in energy efficiency improvements for City facilities that save about 3,704 MWh annually, resulting in 0.4 aMW of load reduction and producing about $240,000 in bill savings each year.

The *ESD* program continues to pursue other individual City of Seattle projects beyond the term of the completed Tailored Agreement. Design assistance and incentive dollars have been provided for the four municipal facilities currently under construction: a new City Hall, Justice Center, downtown Public Library, and McCaw Performance Hall at the Seattle Center. Several other city-owned facilities participating in the Leadership in Efficiency and Environmental Design (LEED™) program are receiving City Light design assistance and incentives.

Apart from the Tailored Agreement with the City of Seattle, the City also began a program to install red and green light-emitting diode (LED) traffic signals in 1998. Completed in 2002, this Seattle Department of Transportation project provides an estimated 6,272 MWh of annual energy savings. *ESD* also funded LED traffic signal retrofit projects in the cities of Burien and Tukwila, and for the Washington Department of Transportation. These additional LED retrofit projects provide another 972 MWh of annual savings to City Light's service area. The savings for these projects are included in the contracted and completed *ESD* project savings tables.

4. The total MWh savings reported by year reflect savings for the current year participants plus savings in that year from all prior participants.

5. First year energy savings from total *ESD* program participants completing work in each year were: 8,966 MWh (1991); 20,875 MWh (1992); 35,091 MWh (1993); 45,544 MWh (1994); 34,733 MWh (1995); 39,350 MWh (1996); 22,446 MWh (1997); 51,949 MWh (1998); 32,168 MWh (1999); 31,574 MWh (2000); 46,686 MWh (2001); 23,364 MWh (2002); and 10,086 MWh (2003).

   At the end of 2002 the cumulative energy savings for measures installed at Tailored Agreement (TA) facilities were 58,480 MWh, contributing 6.676 aMW of load reduction. The affected areas associated with these four TA customers are 9,932,000 square feet at the University of Washington, 7,139,000 square feet in Seattle School District facilities, 889,000 square feet in King County facilities, and 703,000 square feet in City of Seattle municipal buildings. By the end of 2002, six TA contracts were completed with these four major customers (including two contracts each with Seattle School District and the City of Seattle).

ENERGY SMART DESIGN PROGRAM

Electrical energy savings for Facility Assessment Audit projects cover those FA-recommended actions financed by customers on their own. Energy savings financed through the *ESD* and *E$P* programs are listed under the relevant program components (e.g., Custom Incentive). A recent evaluation of the Operations and Resource Assessment Service (May 2000) revealed that customer-financed savings average 22,343 kWh annually per project. This estimate has been adjusted using the same realization rate used for *ESD* existing buildings (0.95). Energy savings for FA projects that eventually receive incentives through the *ESD* or *E$P* programs are listed under the relevant program components (e.g., Custom or Standard Incentive).

In addition to these first year savings from *ESD*-completed projects, a small portion of Energy Smart Design (*ESD*) program savings result from energy conservation measures installed in industrial facilities. These *ESD*-funded measures are largely for lighting, HVAC equipment, and other measures not directly related to industrial processes. The 56,231 MWh of 2003 *ESD* program savings in industrial facilities were extracted from the C-I Tracking System database. These savings have been adjusted to reflect the realization rate for *ESD* projects in new construction (realization factor = 0.49) and in existing buildings (realization factor = 0.95). First year energy savings for *ESD* industrial customers, included above, were by year: 111 MWh (1991); 717 MWh (1992); 3,379 MWh (1993); 959 MWh (1994); 2,541 MWh (1995); 857 MWh (1996); 1,681 MWh (1997); 3,691 MWh (1998); 3,292 MWh (1999); 12,502 MWh (2000); 14,392 MWh (2001); 6,127 MWh (2002); and 5,982 MWh (2003).

6. Information on 1988-1990 costs for administration (e.g., wages, travel) and payments to program participants (e.g., for computer modeling of energy conservation measures) were obtained from monthly Cost Ledger Reports for Work Order No. 70557. For 1991 through 2003, administrative costs were gathered from the Seattle Financial Management System and Summit System for Activity/Work Order Nos. 70557 and 70588.

   Administrative costs for 1993-2003 include an A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours. In 1993 the A&G overhead charge for the *ESD* Program was $369,022, or 28% of total programmatic administrative expenditures. In 1994 the A&G overhead charge was $570,632 (44%), while in 1995 the A&G overhead charge was $513,459 (22%).

   Information on annual incentive payments to participants was obtained from financial records in the Commercial–Industrial Section, Energy Management Services Division. Actual incentive payments in the year were confirmed by Seattle Financial Management System reports.

7. Incentive payments for contracted projects represent the projected cost of payments for participating projects under contract with Seattle City Light. Beginning in 2002, new contracted commercial and industrial incentive and non-incentive projects are funded by the Energy Smart Services (*ESS*) program. As a result of this program conversion, no new *ESD* projects were contracted during 2002 and thereafter. During 2002, amendments were executed for five *ESD* projects originally contracted in 2001. These five amendments ($1,917 for four small projects and $49,766 for one larger project) were added to contracted expenditures for 2001, the year when the original contracts were executed.

   The costs identified as "all payments for projects completed in year" represent all customer incentives for projects completing installation during the year. These incentives were paid over the life of the project, and include any partial payments actually made in a prior year. The amounts of these project-life incentive payments to customers were obtained from financial records in the Commercial–Industrial Section, Energy Management Services Division. The "actual expenditures in year" represent monies spent in the calendar year for projects receiving partial or full incentives during the year; some of these projects may have

ENERGY SMART DESIGN PROGRAM

received an earlier partial payment, or be scheduled to receive another partial payment in a future year. Total expenditures are reported here as the sum of administration costs plus actual incentive payments in the year.

8. The Bonneville Power Administration reimbursements to Seattle City Light for administration and payments to program participants were taken from Commercial–Industrial Section records of amounts invoiced to the BPA.

GENERAL SERVICE EFFICIENCY STANDARDS

Description

Commercial customers requesting new or enlarged electric service are required to implement certain conservation measures. Mandatory measures may involve lighting or water heating conservation measures, or insulation of electric heating ducts. In addition, customers who add electric resistance space heat must have an electric energy analysis. The General Service Efficiency Standards (*GSES*, originally called the Commercial Efficiency Standards) were adopted in June 1982.

Some customers requesting a new or enlarged electric service are exempt from the *GSES*. For example, buildings constructed since the implementation of the Seattle Energy Code in February 1980 are not required to meet the standards. Additional information on buildings exempted from the standards can be found in Section 5.2 of Seattle City Light's *Requirements for Electric Service Connection.*

Eligible Population

The standard applies to current commercial customers requesting new or enlarged electric service.

Lifetime of Conservation Measures Installed

10 years for measures installed in 1983 through 1985; 18 years for measures installed in 1986 through 1995.

Electricity Savings

Since 1983 the *GSES* has saved a total of 51,179 megawatt-hours (MWh). Energy savings in 2006 from cumulative (1983-1995) participants were 1,285 MWh. The load reduction in 2006 due to this program was 0.147 average megawatts (aMW).

GENERAL SERVICE EFFICIENCY STANDARDS

ELECTRICITY SAVINGS FOR THE GENERAL SERVICE EFFICIENCY STANDARDS

Year	*Participants by Year* (1)	*Cumulative Participants*	*kWh Savings per Participant* (2)	*MWh Cumulative Savings in Year*	*Avg. MW Load Reduction in Year*
1983	59	59	689	41	0.005
1984	120	179	689	123	0.014
1985	97	276	689	190	0.022
1986	111	387	5,923	848	0.097
1987	104	491	5,923	1,464	0.167
1988	54	545	5,923	1,783	0.204
1989	27	572	5,923	1,943	0.222
1990	61	633	5,923	2,305	0.263
1991	78	711	5,923	2,767	0.316
1992	14	725	5,923	2,850	0.325
1993	21	746	5,923	2,933	0.335
1994	10	756	5,923	2,910	0.332
1995	6	762	5,923	2,879	0.329
1996	0	762	5,923	2,879	0.329
1997	0	762	5,923	2,879	0.329
1998	0	762	5,923	2,879	0.329
1999	0	762	5,923	2,879	0.329
2000	0	762	5,923	2,879	0.329
2001	0	762	5,923	2,879	0.329
2002	0	762	5,923	2,879	0.329
2003	0	762	5,923	2,879	0.329
2004	0	762	5,923	2,221	0.254
2005	0	762	5,923	1,605	0.183
2006	0	762	5,923	1,285	0.147
Electricity Savings Since Start of Program:				**51,179**	**MWh**

Program Expenditures

Annual expenditures during 1995 were $9,609. Cumulative program expenditures have totaled $192,191 since 1983, the first full year of the *GSES*. This represents the cost to the utility, and not the total resource cost. No outside funding is received for this program.

GENERAL SERVICE EFFICIENCY STANDARDS

PROGRAM EXPENDITURES FOR THE GENERAL SERVICE EFFICIENCY STANDARDS

Year	***Expenditures*** (3)
1983	$12,670
1984	18,468
1985	19,424
1986	30,737
1987	16,042
1988	14,403
1989	11,854
1990	11,941
1991	12,722
1992	14,069
1993	11,901
1994	8,351
1995	9,609
1996-2006	0
TOTAL	**$192,191**

Notes

1. The number of customers complying with the *GSES* was obtained from City Light staff in the Customer Engineering Section, North and South Electrical Services Centers. Staff completed the "Prescriptive Measures" form for each customer who complies with the 5.2 standard.

2. The energy savings (689 kWh) and lifetime (10 years) of conservation measures for participants during 1983-1985 are based on the *Evaluation of the Commercial Efficiency Standards* (1985). This level of savings is carried forward in the table for the lifetime of the measures installed during 1983-1985. The energy savings (5,923 kWh) and the lifetime (18 years) of conservation measures for 1986-1993 participants are based on the *Evaluation Update on the General Efficiency Standards* (1988). This level of savings is likewise carried forward in the table for the lifetime of the measures installed during 1986-1994.

   The energy savings found in the second evaluation are substantially higher than the savings found in the first evaluation. The higher savings found in the second evaluation are due to indoor lighting actions taken in response to the *GSES* from April 1984 through May 1986. One possible reason for the greater savings with these lighting actions included is that greater remodeling took place during the period covered by the second evaluation. See the *Evaluation Update on the General Service Efficiency Standards* (1988) for additional discussion of the energy savings found by the two evaluations.

   The MWh energy savings reported by year reflect savings for the current year participants plus savings in that year from all prior participants.

GENERAL SERVICE EFFICIENCY STANDARDS

First year energy savings from new participants completing work in each year were: 41 MWh (1983); 83 MWh (1984); 67 MWh (1985); 657 MWh (1986); 616 MWh (1987); 320 MWh (1988); 160 MWh (1989); 361 MWh (1990); 462 MWh (1991); 83 MWh (1992); 124 MWh (1993); 59 MWh (1994); and 36 MWh (1995).

3. The source of program administration and implementation expenditures for 1985 through 1990 is Seattle City Light financial reports for Work Order Nos. 70368-01 and 70368-02.

   For 1991 through 1995, cost data were taken from Work Order No. 70368 in the Seattle Financial Management System year-end Work Order Detail Report (1991) and Monthly Master Work Order Report (1992 through 1995).

   Administrative costs for 1993 and 1994 do not include a new A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours.

INDUSTRIAL RESEARCH AND DEMONSTRATION PROJECT

Description

The Industrial Research and Demonstration project (*IRDP*) was proposed by Seattle City Light in early 1986 to:

- Develop overall goals for industrial conservation;
- Construct industrial databases;
- Estimate industrial conservation potential;
- Define industrial program targets; and,
- Establish monitoring, assessment, and evaluation standards for future industrial programs. (1)

The central purpose of the *IRDP* was to test the energy savings and cost-effectiveness for a set of 15 pilot industrial retrofit projects. Consequently, the *IRDP* was not intended to become the ongoing industrial conservation program at Seattle City Light. For a description of City Light's current industrial conservation program, see the *Energy $avings Plan Program*, in SECTION III: ACTIVE COMMERCIAL–INDUSTRIAL PROGRAMS.

Under the terms of the *IRDP*, City Light provided up to 70% of the cost of energy efficient measures for 15 industrial customers. These measures were installed between 1988 and 1992 and included high-efficiency furnace, motor, HVAC (heating, ventilating and air conditioning), air compressor, lighting, welding, and refrigeration measures. Although the final *IRDP* project was completed in 1992, payments to participants and administrative costs continued in 1993.

Eligible Population

Fifteen industrial customers were chosen from the population of 286 industrial customers in the City Light service area. (2)

INDUSTRIAL RESEARCH AND DEMONSTRATION PROJECT

Lifetime of Conservation Measures Installed

Varies between 12 and 20 years depending on measure type, with a weighted average lifetime of 15 years.

Electricity Savings

Since 1988 the Industrial Research and Demonstration Project has saved a total of 47,941 megawatt-hours (MWh). Energy savings in 2006 from cumulative (1988-1992) participants were 1,159 MWh. The load reduction in 2006 due to this program was 0.132 average megawatts (aMW).

ELECTRICITY SAVINGS FOR THE INDUSTRIAL RESEARCH AND DEMONSTRATION PROJECT (3)

Year	*Completed Projects by Year*	*Cumulative Number of Projects*	*kWh Savings per Project*	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
1988	2	2	10,000	20	0.002
1989	5	7	240,516	1,223	0.140
1990	3	10	161,067	1,706	0.195
1991	2	12	165,500	2,037	0.233
1992	3	15	386,483	3,196	0.365
1993	0	15	0	3,196	0.365
1994	0	15	0	3,196	0.365
1995	0	15	0	3,196	0.365
1996	0	15	0	3,196	0.365
1997	0	15	0	3,196	0.365
1998	0	15	0	3,196	0.365
1999	0	15	0	3,196	0.365
2000	0	15	0	3,196	0.365
2001	0	15	0	3,196	0.365
2002	0	15	0	3,196	0.365
2003	0	15	0	3,176	0.363
2004	0	15	0	1,974	0.225
2005	0	15	0	1,490	0.170
2006	0	15	0	1,159	0.132
Electricity Savings Since Start of Program:				**47,941**	**MWh**

INDUSTRIAL RESEARCH AND DEMONSTRATION PROJECT

Program Expenditures

Between 1988 and 1993, program expenditures totaled $689,259. The total Seattle City Light project expenditures for *IRDP* in 1993 were $114,375. These expenditures represent the cost to the utility, and not the total resource cost. No outside funding was received for this project.

PROGRAM EXPENDITURES FOR THE INDUSTRIAL RESEARCH AND DEMONSTRATION PROJECT (4)

Year	*Administration*	*Payment Made to Participants*	*Total*
1988	$35,461	$9,994	$45,455
1989	35,461	151,112	186,573
1990	36,154	137,479	173,633
1991	22,405	61,040	83,445
1992	56,640	29,138	85,778
1993	55,566	58,809	114,375
1994-2006	0	0	0
TOTAL	**$241,687**	**$447,572**	**$689,259**

Notes

1. A report assessed the accomplishment of these program goals, entitled *IRD: Industrial Research and Demonstration Project,* Seattle City Light, Energy Management Services Division, Program Development Section (August 1993).

2. The eligible population figure is from the *Seattle City Light Fingertip Facts* (1993).

3. The source of energy savings is Table 3 (p.27) from the report, *IRD: Industrial Research and Demonstration Project* (August 1993).

   One of the projects completed in 1992 (Associated Grocers) was funded from two sources, $87,415 (74%) coming from the BPA direct-funded Energy $avings Plan, and $31,000 from the *IRDP* (26%). The energy savings shown in this table reflect the portion of total verified savings pro-rated to *IRDP* funding (1,881,088 kWh per year * 0.26179). The remainder of energy savings (1,388,638 kWh) are included under the *E$P* program entry.

   First year energy savings from new participants completing work in each year were: 20 MWh (1988); 1,203 MWh (1989); 483 MWh (1990); 331 MWh (1991); and 1,159 MWh (1992).

INDUSTRIAL RESEARCH AND DEMONSTRATION PROJECT

4. Program administrative expenditures were compiled from Management Information System (MIS) reports in 1988-1990, and from Seattle Financial Management System (SFMS) reports in 1991-1993, for Work Order Nos. 70524-01 and 70541-01. Program participant payment data for 1983-1993 were compiled from MIS and SFMS reports for Work Order No. 70541-01.

   Administrative costs for 1993 do not include a new A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours.

LIGHTING INCENTIVE PROGRAMS

Description

Seattle City Light operated a pilot lighting incentive program from December 15, 1980 through March 15, 1981. The program sponsored by the Bonneville Power Administration operated from December 29, 1981 to October 1, 1983. Both programs offered rebates to commercial customers for replacing conventional fluorescent lamps with energy-efficient fluorescent lamps.

Eligible Population

It was expected that 734,200 lamps would be replaced under the Bonneville Power Administration's Lighting Incentive Program.

Lifetime of Conservation Measures Installed: 5 years

Electricity Savings

The average participant in the Lighting Incentive Programs saved about 34,110 kilowatt-hours (kWh) per year. The savings for each energy-efficient lamp were five watts, as the rated wattage was 35 watts for the energy-efficient lamps and 40 watts for the standard fluorescent lamps.

Between 1981 and 1987, the Lighting Incentive Programs saved a total of 61,057 megawatt-hours (MWh). However, since the lifetime of these measures has expired, this program did not deliver any savings in 2006.

Program Expenditures

Seattle City Light and the Bonneville Power Administration spent $439,264 ($387,664 plus $51,600) on the Lighting Incentive Program from 1981 through 1983.

LIGHTING INCENTIVE PROGRAMS

ELECTRICITY SAVINGS FOR LIGHTING INCENTIVE PROGRAMS

Year	*Buildings by Year*	*Cumulative Buildings*	*kWh Savings per Building*	*MWh Savings in Year* (1)	*Avg. MW Load Reduction in Year*
1981	35	35	34,110	1,194	0.136
1982	107	142	34,110	4,844	0.553
1983	216	358	34,110	12,211	1.394
1984	0	358	34,110	12,211	1.394
1985	0	358	34,110	12,211	1.394
1986	0	358	34,110	11,018	1.258
1987	0	358	34,110	7,368	0.841
1988-2006	0	358	34,110	0	0.000
Electricity Savings Since Start of Programs:				**61,057**	**MWh**

PROGRAM EXPENDITURES FOR THE PILOT SEATTLE CITY LIGHT LIGHTING INCENTIVE PROGRAM

Year	*Expenditures* (2)
1981	$51,600
1982-2006	0
TOTAL	**$51,600**

PROGRAM EXPENDITURES FOR THE BPA LIGHTING INCENTIVE PROGRAM

Year	*Expenditures* (3)
1981	$44,841
1982	132,854
1983	209,969
1984-2006	0
TOTAL	**$387,664**

LIGHTING INCENTIVE PROGRAMS

BPA FUNDING FOR THE BPA LIGHTING INCENTIVE PROGRAM

Year	***BPA Funding*** (4)
1981	$40,073
1982	87,253
1983	219,119
1984-2006	0
TOTAL	$346,445

Notes

1. Electricity savings figures are from the *Evaluation of Seattle City Light's Lighting Incentive Program* (May 1981). After 1983 the program was discontinued, so the later savings shown represent continuing savings from earlier program participants only. Savings drop to zero in 1988 because the measure lifetime has been exceeded.

   First year energy savings from new participants completing work in each year were: 1,194 MWh (1981); 3,650 MWh (1982); and 7,367 MWh (1983).

2. Expenditures for the pilot program are documented in the *Evaluation of Seattle City Light's Incentive Program* (May 1981).

3. Expenditures are from the Conservation Data Base, Energy Management Services Division. Reimbursements from the BPA are not included.

4. The BPA funding figures are from the BPA Short-term Contract Final Report.

LIGHTING SURVEY PROGRAM

Description

Seattle City Light provided free lighting surveys to commercial and industrial customers to improve the efficiency of lighting systems. Detailed lists of conservation measures to improve lighting systems, along with energy savings and cost information, were provided to customers. This program was in effect from 1979 to December 1983, at which time it was amalgamated into the Energy Management Survey Program.

Eligible Population

This program served City Light's commercial and industrial customers.

Lifetime of Conservation Measures Installed: 5 years

Electricity Savings

The average participant in the Lighting Survey Program saved about 50,830 kilowatt-hours (kWh) per year.

Between 1979 and 1987, the Lighting Survey Program saved a total of 28,210 megawatt-hours. However, since the lifetime of these measures has expired, this program did not deliver any savings in 2006.

Program Expenditures

The program expenditures from 1979 through 1983 totaled $29,685. This represents the cost to the utility, and not the total resource cost. There was no outside funding received for this program.

LIGHTING SURVEY PROGRAM

ELECTRICITY SAVINGS FOR THE LIGHTING SURVEY PROGRAM

Year	*Participants by Year*	*Cumulative Participants*	*kWh Savings per Participant* (1)	*MWh Savings in Year* (2)	*Avg. MW Load Reduction in Year*
1979	51	51	50,830	2,592	0.296
1980	7	58	50,830	2,948	0.337
1981	41	99	50,830	5,032	0.574
1982	4	103	50,830	5,235	0.598
1983	8	111	50,830	5,642	0.644
1984	0	111	50,830	3,050	0.348
1985	0	111	50,830	2,694	0.308
1986	0	111	50,830	610	0.070
1987	0	111	50,830	407	0.046
1988-2006	0	111	50,830	0	0.000
Electricity Savings Since Start of Program:				**28,210**	**MWh**

PROGRAM EXPENDITURES FOR THE LIGHTING SURVEY PROGRAM

Year	*Expenditures* (3)
1979	$8,292
1980	1,138
1981	6,666
1982	650
1983	12,939
1984-2006	0
TOTAL	**$29,685**

Notes

1. Electricity savings figures are documented in *Energy Savings in the Commercial–Industrial Energy Management Services Program* (October 1981).

2. After 1983 the program was discontinued, so the later savings represent continuing savings from earlier participants only. Savings drop to zero in 1988 because the measure lifetime has been exceeded. First year energy savings from new participants completing work in each year were: 2,592 MWh (1979); 356 MWh (1980); 2,084 MWh (1981); 203 MWh (1982); and 407 MWh (1983).

3. Program costs of approximately $162 per customer were calculated for 1979 through 1982, based on information provided in the *Evaluation of Seattle City Light's Energy Management Consultation Services* (November 1980). The 1983 data are from City Light MIS reports for Work Order No. 70509.

STREET AND AREA LIGHTING PROGRAM

Description

The Street and Area Lighting Program provided replacement of mercury vapor streetlights with energy-efficient high-pressure sodium luminaires throughout the city. In addition, certain fluorescent fixtures and all mercury and incandescent floodlights were being replaced.

This program began operation in 1982. The Bonneville Power Administration (BPA) sponsored the program from September 1982 to September 1983, and from October 1985 through 1986. Since 1987, Seattle City Light continued the conversion program on its own.

The Street and Area Lighting Program wound down between 1990 and 1992, and was discontinued by the beginning of 1993. The bulk of the conversions between 1990 and 1992 were changes from 1000 watt mercury vapor to 400 watt high-pressure sodium luminaires which produced a relatively high average savings per replacement figure. In prior years, average watt reductions were not as large.

Eligible Population

Approximately 70,000 lamps were originally expected to be replaced under this program. However, at the time the program began, a system cataloging types of lights and fixtures and locations of poles was not in place. This system was instituted in 1989. It is currently estimated that 85,500 streetlights exist in the City Light service area. Of these lights, 70,600 are general-fund while the remaining 14,900 are rentals, mainly outside the city.

By the end of 1992, 60,984 streetlights had been converted to high-pressure sodium. Of the remaining lights, some were originally installed as high-pressure sodium lights and thus did not require conversion.

Lifetime of Conservation Measures Installed: 20 years

STREET AND AREA LIGHTING PROGRAM

Electricity Savings

Since 1982 the Street and Area Lighting Program has saved a total of 521,579 megawatt-hours (MWh). Energy savings in 2006 from cumulative (1982-1992) participants were 4,884 MWh. The load reduction in 2006 due to this program was 0.588 average megawatts (aMW).

ELECTRICITY SAVINGS FOR THE STREET AND AREA LIGHTING PROGRAM

Year	*Lamps Replaced by Year* (1)	*Cumulative Replaced Lamps*	*kWh Avg. Savings per Replacement* (2)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
1982	4,109	4,109	434	1,783	0.204
1983	16,452	20,561	446	9,121	1.041
1984	4,598	25,159	545	11,627	1.327
1985	9,813	34,972	478	16,317	1.863
1986	13,066	48,038	394	21,465	2.450
1987	6,429	54,467	330	23,587	2.693
1988	3,279	57,746	285	24,522	2.799
1989	2,884	60,630	436	25,779	2.943
1990	235	60,865	1,579	26,150	2.985
1991	85	60,950	1,680	26,293	3.001
1992	34	60,984	1,680	26,350	3.008
1993	0	60,984	1,680	26,350	3.008
1994	0	60,984	1,680	26,350	3.008
1995	0	60,984	1,680	26,350	3.008
1996	0	60,984	1,680	26,350	3.008
1997	0	60,984	1,680	26,350	3.008
1998	0	60,984	1,680	26,350	3.008
1999	0	60,984	1,680	26,350	3.008
2000	0	60,984	1,680	26,350	3.008
2001	0	60,984	1,680	26,350	3.008
2002	0	60,984	1,680	24,567	2.804
2003	0	60,984	1,680	17,229	1.967
2004	0	60,984	1,680	14,723	1.681
2005	0	60,984	1,680	10,032	1.145
2006	0	60,984	1,680	4,884	0.558
Electricity Savings Since Start of Programs:				**521,579**	**MWh**

STREET AND AREA LIGHTING PROGRAM

Program Expenditures

Expenditures for street and area lighting conversions totaled $10,472,546 over the eleven years from 1982 through 1992. In 1992, expenditures were $167,176. Some BPA funding for the program was available in 1982, 1983, 1985, and 1986, totaling $3,464,726. Since 1986, City Light covered all program costs.

PROGRAM EXPENDITURES FOR THE STREET AND AREA LIGHTING PROGRAM (3)

Year	*Expenditures*
1982	$682,052
1983	2,380,145
1984	1,158,046
1985	1,329,245
1986	1,221,759
1987	995,767
1988	937,698
1989	928,208
1990	372,502
1991	299,948
1992	167,176
1993-2006	0
Total	**$10,472,546**

BPA FUNDING FOR THE STREET AND AREA LIGHTING PROGRAM (4)

Year	*BPA Funding*
1982	$1,109,813
1983	2,219,626
1984	0
1985	80,663
1986	54,624
1987-2006	0
Total	**$3,464,726**

Notes

1. Data regarding the number and type of street light replacements were obtained from the "Streetlight Conversion Monthly Reports" for 1982 through 1985. Data for 1986 through 1992 were received from City Light's Streetlight Maintenance Unit.

STREET AND AREA LIGHTING PROGRAM

2. The energy savings calculations were based on 4,200 hours of burning time per year. Ballast electricity use for both the installed and replaced lamps was included in the energy savings calculations. Data regarding ballasts were obtained from the *General Electric Ballast Catalogue*. Fixture watt information was obtained from the *CIPP* BPA Audit Workbook. Separate savings calculations were made for each type of lamp replacement and aggregated for this table.

   First year energy savings from new participants completing work in each year were: 1,783 MWh (1982); 7,338 MWh (1983); 2,506 MWh (1984); 4,691 MWh (1985); 5,148 MWh (1986); 2,122 MWh (1987); 935 MWh (1988); 1,257 MWh (1989); 371 MWh (1990); 143 MWh (1991); and 57 MWh (1992).

3. Program expenditures for 1982 through 1990 are compiled from City Light Cost Ledger reports for Work Order Nos. 30655-01, 30655-06, 30655-16, and 30655-26. For 1992, cost data were taken for the same work order numbers from Seattle Financial Management System year-end reports.

4. The BPA funding figures for 1982-1983 were obtained from the BPA Short-term Contract Final Report. The 1985-1987 reimbursements were obtained from the BPA Long-Term Contract monthly invoices.

WALK-THROUGH SURVEY PROGRAM

Description

Seattle City Light's energy management analysts provided technical assistance to commercial and industrial customers by conducting surveys of business facilities, and providing written recommendations for tuning, maintenance, operations, and retrofit conservation measures to reduce energy consumption in the buildings. On January 1, 1984, the Walk-through Survey Program was amalgamated into the Energy Management Survey Program.

Eligible Population

This program served City Light's commercial and industrial customers.

Lifetime of Conservation Measures Installed

Varies, with an estimated average lifetime of 16 years. The conservation measures were installed by customers following City Light's recommendations. (1)

Electricity Savings

The average participant in the Walth-Through Survey Program saved about 23,180 kilowatt-hours per year (6% of the pre-program consumption) for commercial program participants and 73,830 kilowatt-hours per year for industrial customers.

Between 1980 and 1998, the Walk-through Survey Program has saved a total of 185,168 megawatt-hours (MWh). However, since the lifetime of these measures has expired, this program did not deliver any savings in 2006.

WALK-THROUGH SURVEY PROGRAM

ELECTRICITY SAVINGS FOR THE WALK-THROUGH SURVEY PROGRAM

Year	*Participants by Year*	*Cumulative Participants*	*kWh Savings per Participant* (2)	*MWh Savings in Year* (3)	*Avg. MW Load Reduction in Year*
Commercial Customers:					
1980	30	30	23,180	695	0.079
1981	87	117	23,180	2,712	0.310
1982	135	252	23,180	5,841	0.667
1983	174	426	23,180	9,875	1.127
1984	0	426	23,180	9,875	1.127
1985	0	426	23,180	9,875	1.127
1986	0	426	23,180	9,875	1.127
1987	0	426	23,180	9,875	1.127
1988	0	426	23,180	9,875	1.127
1989	0	426	23,180	9,875	1.127
1990	0	426	23,180	9,875	1.127
1991	0	426	23,180	9,875	1.127
1992	0	426	23,180	9,875	1.127
1993	0	426	23,180	9,875	1.127
1994	0	426	23,180	9,875	1.127
1995	0	426	23,180	9,875	1.127
1996	0	426	23,180	9,179	1.048
1997	0	426	23,180	7,163	0.818
1998	0	426	23,180	4,033	0.460
1999-2006	0	426	23,180	0	0.000
Industrial Customers:					
1980	4	4	73,830	295	0.034
1981	11	15	73,830	1,107	0.126
1982	5	20	73,830	1,477	0.169
1983	3	23	73,830	1,698	0.194
1984	0	23	73,830	1,698	0.194
1985	0	23	73,830	1,698	0.194
1986	0	23	73,830	1,698	0.194
1987	0	23	73,830	1,698	0.194
1988	0	23	73,830	1,698	0.194
1989	0	23	73,830	1,698	0.194
1990	0	23	73,830	1,698	0.194
1991	0	23	73,830	1,698	0.194
1992	0	23	73,830	1,698	0.194
1993	0	23	73,830	1,698	0.194
1994	0	23	73,830	1,698	0.194
1995	0	23	73,830	1,698	0.194
1996	0	23	73,830	1,403	0.160
1997	0	23	73,830	591	0.067
1998	0	23	73,830	221	0.025
1999-2006	0	23	73,830	0	0.000

(Cont'd.)

WALK-THROUGH SURVEY PROGRAM

ELECTRICITY SAVINGS FOR THE WALK-THROUGH SURVEY PROGRAM

(Continued)

Year	*Participants by Year*	*Cumulative Participants*	*kWh Savings per Participant* (2)	*MWh Savings in Year* (3)	*Avg. MW Load Reduction in Year*
Total Program:					
1980	34	34	—	991	0.113
1981	98	132	—	3,820	0.436
1982	140	272	—	7,318	0.835
1983	177	449	—	11,573	1.321
1984	0	449	—	11,573	1.321
1985	0	449	—	11,573	1.321
1986	0	449	—	11,573	1.321
1987	0	449	—	11,573	1.321
1988	0	449	—	11,573	1.321
1989	0	449	—	11,573	1.321
1990	0	449	—	11,573	1.321
1991	0	449	—	11,573	1.321
1992	0	449	—	11,573	1.321
1993	0	449	—	11,573	1.321
1994	0	449	—	11,573	1.321
1995	0	449	—	11,573	1.321
1996	0	449	—	10,582	1.208
1997	0	449	—	7,753	0.885
1998	0	449	—	4,255	0.486
1999-2006	0	449	—	0	0.000
Electricity Savings Since Start of Program:				**185,168**	**MWh**

Program Expenditures

The program expenditures from 1980 through 1983 totaled $459,055. This represents the cost to the utility, and not the total resource cost. There was no outside funding received for this program.

WALK-THROUGH SURVEY PROGRAM

PROGRAM EXPENDITURES FOR THE WALK-THROUGH SURVEY PROGRAM

Year	***Expenditures*** (4)
1980	$40,222
1981	115,934
1982	165,620
1983	137,279
1984-2006	0
TOTAL	**$459,055**

Notes

1. As discussed by Gordon, et al. (Use of Commercial Energy Efficiency Measure Service Life Estimates in Program and Resource Planning, *ACEEE 1988 Summer Study on Energy Efficiency in Buildings*, Volume 3), there is considerable variability in the lifetime of conservation measures installed in commercial and industrial facilities. For example, Gordon, et al. found that the lifetime for efficient lamps is usually from three to six years, whereas the lifetime for heating, ventilating, and air conditioning measures was much longer, typically 10 to 20 years. The conservation measures lifetime presented in this report, 16 years, is an amalgamation of the lifetime for the different measures.

2. Electricity savings figures are documented in the *Evaluation of the Walk-Through Survey Program for Commercial and Industrial Customers* (June 1983).

3. After 1983 the program was discontinued, so the later savings shown represent continuing savings from earlier program participants only.

   First year energy savings from new participants completing work in each year were: 991 MWh (1980); 2,829 MWh (1981); 3,498 MWh (1982); and 4,255 MWh (1983).

4. Expenditures for 1980 through 1982 ($1,183 per customer) are documented in the *Evaluation of the Walk-Through Survey Program for Commercial and Industrial Customers* (June 1983). The 1983 data are from City Light MIS reports for Work Order No. 70503.