II. ACTIVE RESIDENTIAL PROGRAMS

2006 RESIDENTIAL HIGHLIGHTS

Seattle City Light provides energy efficiency programs and services to residential (single-family and multifamily) customers, and staffs a telephone Conservation Help Line to provide conservation information and respond to inquiries about conservation. The primary focus of Residential sector activity in 2002-2006 was on completion of conservation projects that are eligible for power purchase offsets, which secure BPA funds under the Conservation Augmentation agreement.

In 2006, City Light secured 0.91 average megawatts (aMW) from authorized and contracted energy savings projects with residential customers. In doing so the utility acquired 81% of the Residential sector goal (1.13 aMW) and 12% of the overall conservation savings goal (7.63 aMW). These savings came from:

- Promoting efficient lighting technologies and appliances such as compact fluorescent light bulbs and washing machines;
- Implementing beat-the-code measures in new and rehabilitated multifamily buildings, both market-rate and affordable housing;
- Retrofitting existing multifamily buildings with efficient windows, insulation and lighting;
- Assisting low-income customers through conservation programs administered by the Office of Housing;
- Helping single-family households assess their resource use and practices; and,
- Promoting conservation and community building for Seattle neighborhoods;

City Light continues innovating to meet customer needs and deliver services more cost-effectively. These changes have been driven by a focus on continuous improvement, continued availability of BPA funds for conservation augmentation, increased pressure on affordable housing markets, and customer values for environmental stewardship. There were several noteworthy developments in 2006 for residential customers.

2006 RESIDENTIAL HIGHLIGHTS

Figure 12

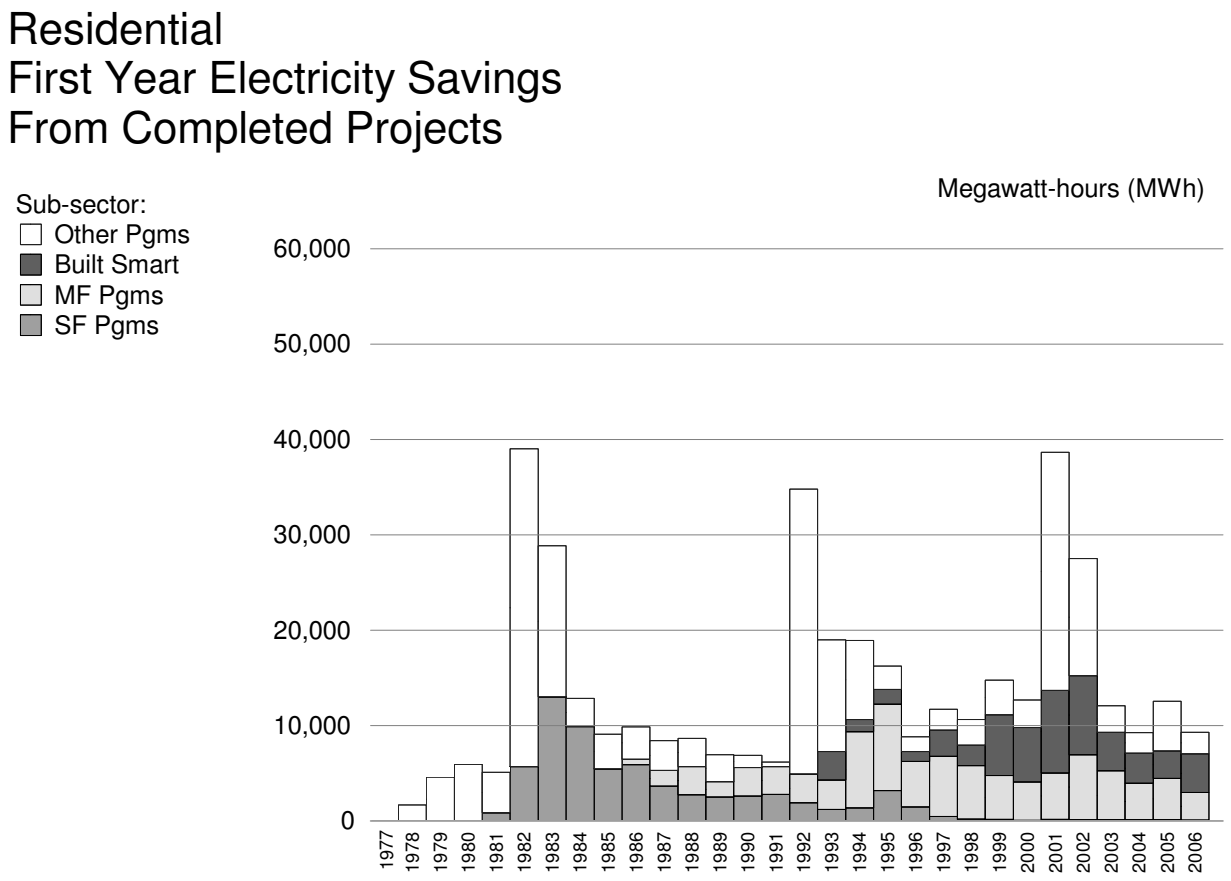

Figure 12 shows first year energy savings from projects completed in Residential programs from 1977 through 2006. Beginning in 1981, shaded areas represent the variety of services to existing and new construction residential buildings delivered through the Home Energy Loan (discontinued), Warm Home and HomeWise/Low Income Electric Programs for single family homes, as well as the Multifamily Conservation Programs (existing buildings) and Built Smart (new construction). All told, these five programs are responsible for delivering 2,681,691 MWh of energy savings to date, and reducing the utility system load by 28.42 aMW in 2006. Meanwhile, other Residential programs have delivered 1,779,878 MWh of energy saving to date, and reduced the system load by 9.80 aMW in 2006. Annual acquisition levels from other programs hit peaks in 1982-1983 with the Blanket Seattle water-heater wrap program, in 1992 with Home Water Savers (showerheads), in 2001 with Conservation Kits (compact fluorescent lights), and 'spillover' CF bulb purchasing in 2002.

2006 RESIDENTIAL HIGHLIGHTS

New Construction: During 2006, City Light focused on serving as many new construction projects as possible, both in the market rate and affordable housing areas. These projects represent 'lost opportunities' if they are not made as efficient as possible when they are built, because it would be much more expensive or even impractical to retrofit them later. In 2006 the program workload and activity remained busy, with construction activity picking up, particularly in the affordable housing sector.

In mid-1997, the revised Built Smart Program was launched to replace the Long-Term Super Good Cents Program formerly sponsored by the Bonneville Power Administration (BPA). The programs provide incentives and services to build new resource efficient apartment buildings to standards that exceed those of the Washington State and Seattle Energy Codes. Built Smart adds water and solid waste recycling solutions to the energy efficiency package, addressing both the construction and occupancy phases of each project. Incentive payments are determined by square footage and by fixture or appliance affected.

For electrically-heated low-rise multifamily buildings, the Built Smart Program provides financial incentives to developers for going beyond energy code requirements for the building shell, including windows and insulation, as well as for efficient lighting. Efficient lighting funds are also available to projects not eligible for shell measures, including steel-frame high-rises and gas-heated buildings. During 1999-2002 City Light significantly expanded goals in the new construction area and shifted staff from multifamily retrofit programs to meet increased demand. Programs now target some niches that were not being served adequately as new construction activity grew, including smaller projects, projects in the suburban cities, as well as efficient lighting in gas-heated and high-rise multifamily buildings. During 2000-2001 research was performed on potential shell-insulation incentives for steel-frame new construction projects, which the program is seeing more often in the service area. In 2003-2004, program goals were reduced somewhat to reflect the slowing pace of multifamily new construction. Additional research was launched in 2005 to build an easy-to-use tool for analyzing performance of buildings that do not go through the program's prescriptive path, due to alternative design choices.

New program components added in 1999 include Built Smart–Affordable Housing and Built Smart–Lighting Only. Affordable Housing provides specialized new-construction and rehabilitation incentives to builders/developers of low-income multifamily housing with electric space heat. Incentives are offered on a square-footage basis. Lighting & Appliance Options provides incentives for installing energy efficient lighting fixtures in common areas of multifamily buildings that do not receive or are ineligible for full Built Smart incentives. These include buildings with gas space heat or steel framing. Lighting services for multifamily new construction have been redesigned based on the energy code changes that took effect July 2001; and shell measure incentives were revised in 2004 for projects permitted under the July 2002 revision.

2006 RESIDENTIAL HIGHLIGHTS

Affordable Housing. City Light has been providing energy efficiency to new affordable housing projects through the Built Smart program for several years. However, in 1999 the Built Smart for Affordable Housing program was developed as a new strategy for reaching this growing market niche. It serves new construction and major rehabilitation projects developed by non-profit low-income housing developers or government agencies by offering customized technical assistance as well as financial incentives. Like new construction, major rehab projects are potential lost opportunities if not served when the building is being rehabilitated.

Combined Programs. Overall, efforts in multifamily new construction (including affordable housing) accounted for 0.29 aMW and 32% of Seattle City Light's residential energy savings. Staff signed contracts for comprehensive Built Smart projects with 3 buildings containing 158 residential units of market-rate new construction. Also contracted or rebated in 2006 were comprehensive Affordable Housing projects with 8 buildings containing 610 units for low-income tenants; and Lighting or Appliance Only measures for another 48 projects with 739 units.

In 2006 the combined programs *contracted* 59 multifamily buildings (1,507 units total) for construction under the stringent program energy standards, meeting the goal for multifamily new building savings. The majority (90%) of these contracted units were in affordable low-income housing starts and other buildings receiving only lighting measures. Construction was *completed* on 100 new buildings (2,813 units) in the combined Built Smart programs during 2006. Staff continued to work with developers to ensure that energy efficient building practices that 'beat the code' are included in the planning stage of new apartment buildings and multi-unit condominiums. Seattle's Built Smart Program is popular with the architectural and apartment development community.

Building Codes. The City of Seattle supports strong building codes to promote energy efficient construction. This support has been going on for well over a decade. The Department of Design, Construction and Land Use (DCLU) develops and enforces City codes, while the City Light Department supplies financial resources for training, technical assistance, and inspection-based enforcement. In 1994-1995 the BPA also provided incentive money to encourage builders to adopt newer technology solutions. In 1995 the Washington Quality Assurance Evaluation for Non-Residential Energy Codes found Seattle to have the highest compliance (100%) in the Northwest—double the rate in the rest of the region. During 1998-2005, Built Smart Program staff worked with DCLU on State energy code changes, and were active in the City Sustainable Building Task Force. Seattle is proud to keep this link strong in the construction market-transformation chain.

2006 RESIDENTIAL HIGHLIGHTS

Weatherization and Retrofit Lighting: Retrofit projects are those that are undertaken specifically to install energy efficiency measures such as windows, insulation, or lighting that are not associated with the larger repair or rehabilitation of a building. City Light continued to provide energy efficiency to existing apartments and condominiums through two multifamily retrofit programs. The Multifamily Conservation program provides windows, insulation, and lighting for older buildings with non-low-income tenants. The Common Area Lighting program provides efficient lighting for buildings built after 1980 when the energy code first required the use of double-pane windows, and for buildings heated with other than electricity. During 2006 through these two programs City Light authorized and *contracted* energy efficiency measures for 3,350 residential units in 155 existing multifamily buildings, saving about 0.26 aMW and generating 28% of City Light's residential energy savings.

Multifamily Weatherization. The Multifamily Conservation Program for standard-income buildings continues to be popular with apartment owners and has a healthy waiting list. It offers cash discounts for insulation, efficient windows, and lighting. Seattle's bread-and-butter residential retrofit program *completed* weatherization and installation of efficient lighting in 45 standard-income buildings (815 units) during 2006.

Multifamily Lighting. The Multifamily Common-Area Lighting Program attracts condominium and apartment owners who do not need weatherization measures and still want to save on bills. Efficient lighting-only retrofits were *completed* during 2006 in the common areas of an additional 134 buildings (3,003 units). Owners receive cash discounts for replacing incandescent or inefficient fluorescent lighting in exterior and interior common areas of multifamily buildings.

Low-Income Weatherization and Lighting. Seattle City Light provided approximately $1.5 million in 2006 for the low-income weatherization programs administered and operated by the Office of Housing (OH, formerly the Department of Housing and Human Services). City Light funding of OH services offers weatherization for both electrically heated single-family homes and multifamily buildings whose owners or tenants meet income eligibility guidelines. This program serves buildings where half of tenants fall below the poverty level. City Light funds also reimburse OH administrative expenses.

During 2006 OH committed City Light funding for weatherization and lighting measures in 11 buildings with 641 units of multifamily housing. At the request of OH, in 1999 the 20% owner contribution requirement for window replacement in the multifamily program was eliminated as a way to help overcome barriers to participation, including the tight multifamily housing market and the three-year covenant requiring owners to maintain the housing as low-income. Income guidelines were identified as another barrier to increased program participation, along with the relatively high degree of market penetration of the programs in both the single- and multifamily sectors. These income guidelines were revised in 2001 by action of the Seattle City Council.

2006 RESIDENTIAL HIGHLIGHTS

In addition, the Office of Housing through the HomeWise/Low-Income Electric Program weatherized 57 low-income single family and two- to four-unit homes. The pool of eligible low-income buildings nears saturation after twenty-four years of program operation (nineteen in the multifamily sector), as well as an economy that has reduced the quantity of housing that remains affordable to low-income residents.

Smaller Residences. In 1994 and 1995 the Warm Home Program was offered to residents of one- to four-unit buildings heated by electricity. The program was designed to attract customers with moderate or near-low incomes. This program was scaled back in 1996-2002 to offer Neighborhood Power Weatherization services only to residents of selected neighborhoods targeted by the Neighborhood Power Project. In 2003 the program completed weatherization of 4 residential units contracted in 2002. The weatherization component of the program was phased out at year end on account of budget restraints and low production. Staff conducted 163 advisory Green Audits during 2006 to set back water-heater thermostats and to install compact fluorescent lamps and efficient-flow showerheads.

A special initiative was launched in 2001 to deliver Conservation Kits to 178,481 residential customers. This effort resulted in the installation of 299,632 compact fluorescent light bulbs and 92,810 efficient bathroom faucet aerators. Compact fluorescent bulbs were also distributed to another 39,800 customers through Block Watch captains for the annual 'Night Out', through Neighborhood Power volunteers to their neighbors, to attendees of a Mariners baseball game, and to low-income multifamily housing providers through the Office of Housing. These distributions resulted in the installation of 38,705 efficient bulbs. Another 11,560 bulbs were installed in 2003, 7,279 in 2004, 15,604 in 2005, and 5,784 in 2006; the results of these initiatives are reported with the Neighborhood Power Programs.

A new initiative in 2005 delivered Conservation Kits to another 48,659 residential customers, resulting in installation of 81,688 compact fluorescent light bulbs and 24,330 efficient bathroom faucet aerators. This initiative was funded by a state grant from the Washington Consumers Energy Fund, administered by the Seattle Foundation.

Retail Lighting and Appliances: Begun in 1997, the LightWise, WashWise, and LaundryWise programs have been operating in conjunction with the Northwest Energy Efficiency Alliance (NEEA). The purpose of the Residential Retail-Wise programs is to increase the installation of energy efficient appliances and lighting during normal replacement (see SECTION II: ACTIVE RESIDENTIAL PROGRAMS). In addition to supporting the NEEA market transformation programs, Seattle City Light and Seattle Public Utilities offer direct rebates for qualifying laundry appliances. City Light also distributed retail discount coupons in 2001 for the purchase of Energy Star® compact fluorescent bulbs, resulting in 22,171 redemptions at local stores during 2001-2002, saving customers 1,463 MWh annually for six years.

2006 RESIDENTIAL HIGHLIGHTS

City Light provides marketing and promotional support for the NEEA Energy Star Fixture and former LightWise programs to encourage awareness of and customer demand for compact fluorescent light bulbs and fixtures. Energy Star and LightWise are regional multi-utility programs that have offered reduced in-store prices on a variety of high quality compact fluorescent products. The price discounts are provided by Northwest utilities in collaboration with the NEEA. Qualifying products were identified in the store by a yellow-and-black LightWise sticker on bulb packaging. The associated regional Energy Star labeling program does the same for compact fluorescent fixtures. In 1997-2000, LightWise and Energy Star brought 62,494 qualifying light-bulbs and 11,912 fixtures into stores in the Seattle City Light service area, potentially saving 4,836 megawatt-hours (MWh) per year when installed. The sponsors also held Torchiere Turn-in events in 1999, where customers hand over dangerous halogen floor lamps and replace them with discounted compact-fluorescent models. Meanwhile, the Conservation Kit program resulted in significant 'spillover' retail purchasing attributable to the influence of that program; in 2002-2006, customers enjoyed savings of 9,070 MWh annually from the 166,418 Energy Star bulbs purchased in 2001.

WashWise started as a regional, multi-utility program that offered instant in-store rebates plus possible additional mail-in rebates on the purchase of new resource efficient clothes washers. Almost all of the qualifying in-home models are front loaders, and all use a tumble action process to clean clothes. Tumble-action washers are preferred over conventional top-loading agitator models because qualifying machines typically use 60% less energy and 40% less water than standard models. Purchase prices are higher than for conventional machines with comparable features, but operating costs are lower in the long run. Direct financial support for regional program advertising comes from the NEEA. The Alliance also provided an in-store rebate of $130 during 1997, which was reset at $75 for 1998, then discontinued in September 1998 with the inauguration of NEEA's Energy Star labeling program.

Beginning in 1998, Seattle City Light had offered a $50 mail-in rebate per qualifying installed clothes washer (fuel-blind), while Seattle Public Utilities (Water and Waste Water) matched this with an additional $50 mail-in rebate. The combined rebate was lowered to $75 during the first quarter of 2001. In 2004 a new three-tiered rebate structure (of $100, $75, and $50) was implemented, based on minimum efficiency levels for energy performance. In 2005 the same efficiency tiers were maintained but the rebates for the lower tiers were reduced to $50 and $25 respectively, to provide stronger relative support for the most efficient machines. In 1997-2006 retailers sold 40,109 qualifying WashWise machines in the Seattle City Light service area, potentially saving over 12,206 MWh per year on electricity. Seattle City Light and Seattle Public Utilities continue to collaborate through the WashWise program to increase customer awareness of and demand for resource-efficient washing machines. In 2006 alone, the two utilities provided rebates for 5,479 machines purchased in City Light's service territory.

2006 RESIDENTIAL HIGHLIGHTS

Through 2004, City Light also funded and administered the LaundryWise program, a collaborative effort by a number of Puget Sound area water and electric utilities to encourage the use of resource efficient washing machines in multifamily common-area laundries. The LaundryWise program offered incentives for installing coin-operated tumble-action clothes washing machines in these locations. Seattle City Light was responsible for marketing the laundry appliance program to customers and dealer participants, for database management and quality control. The incentive program ended with 2004 due to a revision to the Seattle Energy Code specifying a minimum efficiency level for newly installed coin-operated clothes washers. In 1997-2005 property managers installed 869 qualifying LaundryWise machines, acquiring 390 MWh in annual energy savings.

Household Information: The Residential Profile Service helps single-family households to assess their energy and water usage, along with solid waste practices. Based on actual billing histories, the service recommends ways for households to save on utility costs. In 1998 Seattle City Light in collaboration with Seattle Public Utilities conducted a trial of this service in two neighborhoods: Lake City (northeast Seattle) and Southeast Seattle (including Rainier Beach). Survey research and focus groups to help improve future offerings citywide accompanied the trial.

In 2001-2006 the free Residential Profile Service was offered to residential customers. It provides participants with a personalized assessment of their energy and water usage, broken down by a variety of end-uses, the costs associated with each end-use, and recommendations for energy, water, and solid waste reductions. Customers participating in the service fill out a questionnaire about the characteristics of their home and about their energy and water use. The questionnaire is available in paper format and through the Internet. The consultant contracted to deliver the service analyzes the customer's responses and actual billing data. The consultant prepares a personalized report containing the results of the analysis, recommendations for reducing the customer's utility bills and resource use, and referrals to specific City programs.

Staff worked with the service delivery contractor and Seattle Public Utilities to customize the service, including the marketing materials, questionnaire, and customer report. During 2000 the service was marketed through bill-stuffers, and by direct mail to single-family households in targeted neighborhoods. Internet service is available to all residents; it has been marketed aggressively because the Internet web version is less expensive to deliver and provides powerful opportunities to link to City program sites and other information sources. There was increased demand in 2001 for the Home Resource Profile service, due to the Conservation Kit solicitation letter in early spring. In 2002 the paper version was phased out, and in 2003 the service was expanded to include multifamily building households. The offering of a free compact fluorescent bulb in 2004 stimulated participation for much of the year. Via the Internet web site, 2,933 residential customers participated in the service in 2004.

2006 RESIDENTIAL HIGHLIGHTS

Community Neighborhoods: The Neighborhood Power program employs a community-based strategy to promote conservation and community-building programs in selected neighborhoods of Seattle. The project goal is to conserve valuable resources such as energy, water, and a clean environment. At the same time the project provides benefits to participating residents and business owners such as saving money on utility bills, improving comfort and safety, and building a stronger community. The interdepartmental Neighborhood Power efforts led by City Light support Seattle's objective of acquiring multi-resource conservation from residents and businesses. The neighborhood projects create partnerships between the City and the neighborhoods, and promote interdepartmental collaboration in meeting neighborhood needs.

Residents and business owners receive extensive energy, water, and solid waste reduction assistance. Residential customers are offered Green Audits and are introduced to the HomeWise/Low-income Electric or Multifamily Programs. Small commercial customers are introduced to the $mart Business Program.

The first Neighborhood Power project was conducted as a pilot during 1995 in Seattle's Fremont (near north-central) district. During 1996-1997 a second project was offered in Georgetown / Beacon Hill / Maple Hill (south central). Seattle areas chosen for subsequent Neighborhood Power Projects were Lake City (northeast Seattle) in 1998, Rainier Beach / Southeast Seattle in 1999, Delridge / White Center / West Seattle (southwest Seattle) in 2000; and the Central Area (east of downtown) in 2001. The focus in 2002 turned to the Greenwood / Phinney Ridge neighborhood (northwest Seattle), in 2003 to the adjacent neighborhood of Ballard (also northwest Seattle), in 2004-2005 to the North Rainier / International District (southeast of downtown), during 2005 in the University District surrounding the University of Washington, and during 2006 in the West Seattle/Alki neighborhood.

High Bill Audits: Community Conservation staff continued to provide home energy audits for some of the customers who have called City Light about their high bills; during 2004 about eight were conducted. The audit service is limited to those customers who are referred by the Hearing Officer or Customer Service management. Many of the customers who received audits called City Light because their winter consumption put them in the 'third tier' residential rate and their bills were much higher than the previous year.

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

Description

Long-Term Super Good Cents *(LTSGC)* and its successor, Built Smart, are 'beat the code' programs designed to encourage builders of new multifamily residential dwellings with electric space heat to exceed provisions of the Washington State Energy Code and the Seattle Energy Code. The goal is to move the market toward more efficient construction practices. The Bonneville Power Administration offered Super Good Cents under the Residential Conservation Agreement. Seattle's *LTSGC* program started in October 1992, after a year of development. Partial funding for program development and promotion was provided by the BPA. Funding provided by the BPA via the Third Party Financing Agreement began in June 1994. In 1996 this program was fully funded by Seattle City Light.

Incentives are paid to builders for measures that upgrade the building shell, efficient thermostats, lighting measures, and efficient appliances such as water heaters, refrigerators and showerheads. Thermal envelope upgrades are based upon a prescriptive path of measures, or a computer analysis of heat loss and estimated savings per dwelling unit. Appliance upgrades are based upon efficiency ratings. Participants acquired by contract in 1992 to 1993 were defined as Tier I (all feasible measures) or Tier II (a proportion of feasible measures), with or without Add-ons (appliance measures). Beginning in BPA fiscal year 1994, reporting of participation was redefined as Option 1 (flat rate) or Option 2 (square-footage based) with added Optional Measures.

Seattle's "Super Good Cents" licensing agreement ended in June 1997. While projects contracted in 1994 through early 1997 continued construction under *LTSGC*, in mid-1997 the successor Built Smart Program was phased in. *Built Smart* incorporates referrals for water conservation and waste recycling measures, during both the construction and occupancy stages of each project. *Built Smart* provided builders with a simpler prescriptive path for energy efficiency compliance, initially with a per-square-foot (rather than per-unit) incentive structure that was more advantageous to builders. Until mid-2001 the lighting incentive continued to be calculated per-fixture, as in the *LTSGC* program structure. In July 2001 a new Seattle Energy Code requirement for common-area lighting went into effect for multifamily building permits. Lighting incentives are now offered based on calculated savings, rather than the former flat incentive per fixture, and are available for efficient in-unit lighting as well. In 2004 shell measure incentives were revised on a component-area basis (rather than floor square footage).

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

New program components implemented in 1999 include *Built Smart—Affordable Housing* and *Built Smart—Lighting & Appliance Options*. *Affordable Housing* provides specialized new-construction and rehabilitation incentives to builders/developers of low-income multifamily housing with electric space heat. *Lighting & Appliance Options* provides incentives for installing energy efficient lighting fixtures in common areas of multifamily buildings that do not receive or are ineligible for full Built Smart incentives. These include buildings with gas space heat or steel framing. High-rise steel-framed buildings are also offered incentives for qualifying models of appliances such as dishwashers and refrigerators, for efficient ventilation fan systems, and through mid-2002 were encouraged to apply for efficient water heater rebates through the *EEWHRP* program. Since that time, water heater rebates were picked up directly by the *Built Smart* programs. In January 2004 federal appliance efficiency standards rose and the program discontinued water heater rebates. In the following tables, the category *Add-ons Only* continues to refer to appliance and lighting measures installed in buildings not receiving shell measures.

In September 2001 the Washington State energy code added a requirement that lighting power density (LPD) in common areas of new multifamily buildings should be less than 1.0 Watt per square foot. For projects falling under this code requirement, lighting savings are calculated based on the difference in LPD below 1.0 Watt. In July 2002 the code was again revised. The most significant and relevant change was an increase in wall insulation requirements from R-19 to R-21. Analysis of the effects of these changes continued through 2003 and did not affect any projects contracted in that year. As a result of this analysis, the program was redesigned effective April 2004 for buildings with permits under the 2002 version of the energy code. Incentive offerings and savings estimates were revised downward to reflect the code changes, improvements in window and building technologies, and updated climate assumptions. These revisions are reflected in this report for 2006 and 2006 contracts. Shell measure incentives are now applied on the basis of individual component areas, rather than floor areas, which allows credit to be given for efficiency improvements made beyond minimum program requirements.

Eligible Population

This program, as implemented by Seattle City Light, serves new-construction and major-rehabilitation multifamily buildings (of 5 units or more).

Lifetime of Conservation Measures Installed:

The lifetime of measures ranges from 50 years for dwelling-area shell measures to 16 years for common-area lighting; the weighted average lifetime is 33 years.

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

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 will be realized when the projects are completed. Multifamily new construction projects may take up to two years to move from contract to completion, and not all proposed projects are actually built as scheduled. This table has been revised in each year to delete contracted projects awaiting construction that were terminated by the developer. The second table presents savings realized from projects completed during the calendar year. Savings estimates in both tables have been revised based on new documentation of energy conservation measure counts.

In 1992 the *LTSGC* program authorized incentives for multifamily new construction buildings that had not yet been completed and occupied, so there were no electricity savings realized in that calendar year. 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.

According to an evaluation done by Seattle City Light, the average unit in a new construction (1993-1994 participant) *LTSGC* multifamily building saves about 2,380 kilowatt-hours (kWh) per year. The average *Built Smart* participant contracted prior to 2002 and receiving all potential measures would save about 2,600 kWh annually per average unit. Actual savings presented here are calculated by the mix of measure components installed during each program year. Under the BPA Conservation Augmentation agreement, more recent *Built Smart* participants permitted under the old, pre-2001 Energy Code and receiving full measures are deemed to save 2,275 kWh annually per unit (including a deemed value for common-area lighting impacts). Those permitted under the new, post-2001 Energy Code are deemed to save 1,080 kWh annually from just non-lighting measures. These numbers dropped to 2,205 and 1,010 kWh, respectively, in January 2004 after new water heater efficiency standards took effect. Projects authorized beginning April 2004 are calculated based upon component area square footage; savings from common-area lighting measures are now calculated, using an incandescent baseline for pre-2001 projects and the new 1.0 Watt per square foot baseline for post-2001 projects.

In 2006 the energy savings from cumulative (1992-2006) *LTSGC* and *Built Smart* completed projects were 54,876 megawatt-hours (MWh). The load reduction in 2006 due to this program was 6.264 average megawatts (aMW).

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

ELECTRICITY SAVINGS FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM — Contracted Projects —

Year	Incentive Type	Contracted Buildings by Year (1)	Contracted Units by Year	Cumulative Units	kWh First Year Savings per Unit (2)	MWh Savings in Year (2)	Avg. MW Load Reduction in Year
1992	Multifamily SGC	4	428	428	2,713	1,161	0.133
	Single Family	1	1	1	0	0	0.000
	Add-ons Only	1	6	6	1,460	9	0.001
	Annual Total	6	435	435	—	1,170	0.134
1993	Multifamily SGC	20	1,034	1,462	2,425	3,669	0.419
	Single Family	0	0	1	0	0	0.000
	Add-ons Only	9	654	660	429	290	0.033
	Annual Total	29	1,688	2,123	—	3,958	0.452
1994	Multifamily SGC	33	1,021	2,483	2,308	6,025	0.688
	Single Family	1	1	2	2,736	3	0.000
	Add-ons Only	0	0	660	0	290	0.033
	Annual Total	34	1,022	3,145	—	6,317	0.721
1995	Multifamily SGC	20	993	3,476	2,470	8,477	0.968
	Single Family	0	0	2	0	3	0.000
	Add-ons Only	0	0	660	0	290	0.033
	Annual Total	20	993	4,138	—	8,770	1.001
1996	Multifamily SGC	52	1,593	5,069	2,364	12,243	1.398
	Single Family	0	0	2	0	3	0.000
	Add-ons Only	0	0	660	0	290	0.033
	Annual Total	52	1,593	5,731	—	12,535	1.431
1997	Super Good Cents	17	628	5,699	2,531	13,835	1.579
	Add-ons Only	0	0	660	0	290	0.033
	Built Smart	2	112	112	2,594	290	0.033
	Annual Total	19	740	6,471	—	14,415	1.646
1998	Super Good Cents	1	47	5,746	2,745	13,964	1.594
	Add-ons Only	145	842	1,502	1,367	1,441	0.164
	Built Smart	46	1,637	1,749	2,523	4,420	0.505
	Annual Total	192	2,526	8,997	—	19,825	2.263
1999	Super Good Cents	0	0	5,746	0	13,964	1.594
	Add-ons Only	6	801	2,303	1,380	2,546	0.291
	Built Smart	46	1,957	3,706	2,501	9,315	1.063
	Annual Total	52	2,758	11,755	—	25,825	2.948

(Cont'd.)

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

ELECTRICITY SAVINGS FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM — Contracted Projects —

(Continued)

Year	Incentive Type	Contracted Buildings by Year (1)	Contracted Units by Year	Cumulative Units	kWh First Year Savings per Unit (2)	MWh Savings in Year (2)	Avg. MW Load Reduction in Year
2000	Super Good Cents	0	0	5,746	0	13,964	1.594
	Add-ons Only	12	992	3,295	1,652	4,184	0.478
	Built Smart	57	1,925	5,631	2,532	14,189	1.620
	Annual Total	69	2,917	14,672	—	32,338	3.692
2001	Super Good Cents	0	0	5,746	0	13,964	1.594
	Add-ons Only	13	1,011	4,306	1,583	5,785	0.660
	Built Smart	42	2,435	8,066	2,499	20,274	2.314
	Annual Total	55	3,446	18,118	—	40,023	4.569
2002	Super Good Cents	0	0	5,746	0	13,964	1.594
	Add-ons Only	11	930	5,236	1,956	7,604	0.868
	Built Smart–Old	17	753	8,819	2,459	22,126	2.526
	Built Smart–New	28	1,092	1,092	1,130	1,233	0.141
	Annual Total	56	2,775	20,893	—	44,927	5.129
2003	Super Good Cents	0	0	5,746	0	13,964	1.594
	Add-ons Only	11	1,038	6,274	1,389	9,046	1.033
	Built Smart–Old	7	354	9,173	2,360	22,961	2.621
	Built Smart–New	34	887	1,979	1,379	2,456	0.280
	Annual Total	52	2,279	23,172	—	48,428	5.528
2004	Super Good Cents	0	0	5,746	0	13,964	1.594
	Add-ons Only	7	357	6,631	1,068	9,427	1.076
	Built Smart–Old	2	179	9,352	4,548	23,775	2.714
	Built Smart–New	56	1,986	3,965	1,238	4,916	0.561
	Annual Total	65	2,522	25,694	—	52,083	5.946
2005	Super Good Cents	0	0	5,746	0	13,964	1.594
	Add-ons Only	88	1,000	7,631	864	10,291	1.175
	Built Smart–Old	0	0	9,352	0	23,775	2.714
	Built Smart–New	99	1,143	5,108	2,640	7,556	0.863
	Annual Total	187	2,143	27,837	—	55,586	6.345
2006	Super Good Cents	0	0	5,746	0	13,964	1.594
	Add-ons Only	48	739	8,370	1,023	11,048	1.261
	Built Smart–Old	0	0	9,352	0	23,775	2.714
	Built Smart–New	11	768	5,876	2,163	9,216	1.052
	Annual Total	59	1,507	29,344	—	58,004	6.621
Potential Electricity Savings Since Start of Program:						**424,204**	**MWh**

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

ELECTRICITY SAVINGS FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM — Completed Projects —

Year	Incentive Type	Completed Buildings by Year (1)	Completed Units by Year	Cumulative Units	kWh First Year Savings per Unit (2)	MWh Savings in Year (2)	Avg. MW Load Reduction in Year
1992	Multifamily SGC	0	0	0	0	0	0.000
	Single Family	1	1	1	0	0	0.000
	Add-ons Only	0	0	0	0	0	0.000
	Annual Total	1	1	1	—	0	0.000
1993	Multifamily SGC	16	1,115	1,115	2,436	2,716	0.310
	Single Family	0	0	1	0	0	0.000
	Add-ons Only	9	483	483	532	257	0.029
	Annual Total	25	1,598	1,599	—	2,973	0.339
1994	Multifamily SGC	12	514	1,629	2,399	3,949	0.451
	Single Family	1	1	2	2,736	3	0.000
	Add-ons Only	1	177	660	185	290	0.033
	Annual Total	14	692	2,291	—	4,241	0.484
1995	Multifamily SGC	24	666	2,295	2,309	5,486	0.626
	Single Family	0	0	2	0	3	0.000
	Add-ons Only	0	0	660	0	290	0.033
	Annual Total	24	666	2,957	—	5,779	0.660
1996	Multifamily SGC	12	404	2,699	2,552	6,518	0.744
	Single Family	0	0	2	0	3	0.000
	Add-ons Only	0	0	660	0	290	0.033
	Annual Total	12	404	3,361	—	6,810	0.777
1997	Super Good Cents	48	1,108	3,809	2,472	9,259	1.057
	Add-ons Only	0	0	660	0	290	0.033
	Built Smart	1	8	8	2,600	21	0.002
	Annual Total	49	1,116	4,477	—	9,569	1.092
1998	Super Good Cents	21	807	4,616	2,430	11,220	1.280
	Add-ons Only	1	12	672	1,367	306	0.035
	Built Smart	10	77	85	2,517	215	0.025
	Annual Total	32	896	5,373	—	11,740	1.340
1999	Super Good Cents	12	1,050	5,666	2,421	13,762	1.571
	Add-ons Only	6	640	1,312	1,367	1,181	0.135
	Built Smart	39	1,176	1,261	2,526	3,186	0.364
	Annual Total	57	2,866	8,239	—	18,128	2.069

(Cont'd.)

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

ELECTRICITY SAVINGS FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM — Completed Projects —

(Continued)

Year	*Incentive Type*	*Completed Buildings by Year* (1)	*Completed Units by Year*	*Cumula-tive Units*	*kWh First Year Savings per Unit* (2)	*MWh Savings in Year* (2)	*Avg. MW Load Reduction in Year*
2000	Super Good Cents	1	20	5,686	2,745	13,817	1.577
	Add-ons Only	152	1,067	2,379	1,641	2,932	0.335
	Built Smart	38	1,537	2,798	2,528	7,072	0.807
	Annual Total	191	2,624	10,863	—	23,820	2.719
2001	Super Good Cents	0	0	5,686	0	13,817	1.577
	Add-ons Only	15	1,575	3,954	1,485	5,271	0.602
	Built Smart	62	2,484	5,282	2,541	13,383	1.528
	Annual Total	77	4,059	14,922	—	32,471	3.707
2002	Super Good Cents	0	0	5,686	0	13,817	1.577
	Add-ons Only	12	1,104	5,058	1,751	7,205	0.822
	Built Smart–Old	39	2,476	7,758	2,563	19,730	2.252
	Annual Total	51	3,580	18,502	—	40,751	4.652
2003	Super Good Cents	0	0	5,686	0	13,817	1.577
	Add-ons Only	12	1,216	6,274	1,514	9,046	1.033
	Built Smart–Old	12	518	8,276	2,346	20,945	2.391
	Built Smart–New	28	578	578	1,684	973	0.111
	Annual Total	52	2,312	20,814	—	44,781	5.112
2004	Super Good Cents	0	0	5,686	0	13,817	1.577
	Add-ons Only	7	357	6,631	1,068	9,427	1.076
	Built Smart–Old	9	464	8,740	3,109	22,387	2.556
	Built Smart–New	23	859	1,437	1,556	2,310	0.264
	Annual Total	39	1,680	22,494	—	47,941	5.473
2005	Super Good Cents	0	0	5,686	0	13,817	1.577
	Add-ons Only	86	972	7,603	862	10,265	1.172
	Built Smart–Old	5	298	9,038	2,205	23,045	2.631
	Built Smart–New	40	936	2,373	1,464	3,680	0.420
	Annual Total	131	2,206	24,700	—	50,807	5.800
2006	Super Good Cents	0	0	5,686	0	13,817	1.577
	Add-ons Only	50	767	8,370	1,020	11,048	1.261
	Built Smart–Old	4	344	9,382	2,339	23,849	2.723
	Built Smart–New	46	1,702	4,075	1,459	6,163	0.704
	Annual Total	100	2,813	27,513	—	54,876	6.264
Electricity Savings Since Start of Program:						**354,687**	**MWh**

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

Program Expenditures

From 1992 through 2006, 554 active building contracts and rebates for 947 buildings with 29,344 units were authorized with multifamily new construction builders through the *LTSGC* and *Built Smart* Programs, amounting to $14,218,320 in builder incentives. Of these contracts, $1,999,688 in authorized incentives are for projects that are still planned but have not yet started or finished construction. Meanwhile, 58 contracts for 84 buildings with 2,910 units and proposed incentives of $1,753,151 were initiated but later cancelled for various reasons. Construction was completed during 1992-2006 on about 96% of the active contracted units, for which incentives amounting to $12,218,631 have been paid to builders. Partial payments and accruals are still outstanding for several projects awaiting construction or in progress; including these accruals, expenditures to date through the end of 2006 are $12,495,797. Administrative expenses for the programs during the fifteen years were $7,875,593. Total expenditures during 1992-2006 of $20,371,391 represent the cost to the utility and not the total resource cost.

PROGRAM EXPENDITURES FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM (5)

Year	*Administration* (3)	*Incentive Payments to Participants*			*Total Expenditures*
		Contracted Projects (4)	*All Payments for Projects Completed in Year* (4)	*Actual Expenditures in Year* (4)	
1992	$56,824	$301,341	$2,000	$258,526	$315,350
1993	141,167	797,090	770,796	890,825	1,031,992
1994	171,168	701,530	344,475	174,370	345,538
1995	180,977	625,680	418,380	732,027	913,004
1996	303,606	953,705	261,950	357,138	660,744
1997	421,779	437,046	567,278	412,493	834,273
1998	461,391	1,119,876	484,534	687,224	1,148,615
1999	715,117	1,231,690	1,317,983	1,075,882	1,790,999
2000	768,206	1,491,105	1,006,075	979,603	1,747,809
2001	767,545	1,603,315	1,589,584	1,803,029	2,570,574
2002	876,972	1,279,924	1,595,509	1,333,489	2,210,461
2003	693,913	934,534	993,600	970,315	1,664,228
2004	699,728	1,404,885	928,582	903,085	1,602,813
2005	689,500	844,577	775,866	855,419	1,544,920
2006	927,700	492,023	1,162,020	1,062,372	1,990,072
Total	**$7,875,593**	**$14,218,320**	**$12,218,631**	**$12,495,797**	**$20,371,391**

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

The Bonneville Power Administration provided $2,802,632 during 1992-1999 for program development, promotion, administration, and incentive payments. BPA funding was provided in 1992 at a 75% cost share, while from 1993 through 1998 the BPA provided 100% funding for allowable expenses. The final payment in 1999 brought to a close BPA sponsorship of the Long-Term Super Good Cents Program.

FINANCIAL EFFICIENCY MEASURES FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM
— Per Completed Unit — (5)

Year	*Average Administration*	*Average Installation*	*Average Total Expenditure*	*Administration as a % of Total Expenditures*
1992	$56,824	$2,000	$58,824	18.0%
1993	88	482	571	13.7
1994	247	498	745	49.5
1995	272	628	900	19.8
1996	752	648	1,400	45.9
1997	378	508	886	50.6
1998	515	541	1,056	40.2
1999	250	460	709	39.9
2000	293	383	676	44.0
2001	189	392	581	29.9
2002	245	446	691	39.7
2003	300	430	730	41.7
2004	417	553	969	43.7
2005	313	352	664	44.6
2006	330	413	743	46.6
Average 1992-2006	**$286**	**$444**	**$730**	**38.7%**

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

BPA FUNDING FOR THE LONG-TERM SUPER GOOD CENTS PROGRAM

Year	***Administration*** (5)	***Incentives*** (6)	***Total Funding***
1992	$11,250	$1,500	$12,750
1993	84,036	583,456	667,492
1994	9,320	533,815	543,135
1995	5,160	369,285	374,445
1996	0	204,615	204,615
1997	0	607,860	607,860
1998	0	353,585	353,585
1999	0	38,750	38,750
2000-2006	0	0	0
Total	**$109,766**	**$2,692,866**	**$2,802,632**

Notes

1. Data on the number of authorized and completed projects were obtained from contract and program files (Community Conservation Section), from the Energy Management Tracking System (EMTS), and from invoices to the Bonneville Power Administration. Participants include all new construction multifamily projects approved by City Light under the provisions of LTSGC and Built Smart during 1992-2006. Some of these projects have not yet been completed and occupied, as it is typical for a construction project to take one to four years from design stage to completion of construction. Participant figures include one manufactured home with zonal electric heat served under the BPA program promotion contract during second quarter 1992. Also, one single-family model conservation home was served in 1994. A 139-building complex contracted in 1998 was completed in 2000.

   Light & Appliance projects include Super Good Cents Add-ons Only as well High-rise, Lighting, and Appliance rebates, where shell measures were not implemented. Projects were completed during 1993-2006 in the following components:

	Market-Rate SGC & B. S.		Affordable Housing		Light & Appliances Non-Shell Only	
	Bldgs	Units	Bldgs	Units	Projects	Units
1993	16	1,115	–	–	9	483
1994	12	514	–	–	1	177
1995	24	666	–	–	0	0
1996	12	404	–	–	0	0
1997	49	1,116	–	–	0	0
1998	26	858	5	26	1	12
1999	35	1,969	16	257	6	640
2000	32	1,295	7	262	152	1,067
2001	38	1,988	24	496	15	1,575
2002	30	2,044	9	432	12	1,104
2003	31	818	9	278	12	1,216
2004	16	1,141	16	182	7	357
2005	23	657	22	577	86	972
2006	14	1,213	36	833	50	767
Total	358	15,798	144	3,343	833	8,370

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

2. BPA estimates of energy savings were based the following schedule: 510 kWh per residential unit in space heat savings for Tier I, Tier II, and Option 2 participants; 120 kWh per efficient refrigerator or freezer; 463 kWh per unit for internal lighting modifications; and 463 kWh per unit for external lighting modifications. These energy savings estimates were determined by the Policy and Planning Unit, based upon the Residential Conservation Agreement (RCA).

   An evaluation completed in 1996 found actual energy savings from the program, as implemented by Seattle City Light, be about two-thirds higher than BPA projections. Energy savings projections in these tables are derived from the *Impact Evaluation of the Long-Term Super Good Cents Multifamily Program* (November 1996). During 1995, participants with buildings completed in 1993-1994 saved an average of 2,380 kilowatt-hours per unit annually from building envelope, thermostat, and lighting conservation measures. The contribution of each measure type was (as a weighted average across building types): 1,110 kWh per residential unit in space heat savings; 60 kWh per unit for within-unit lighting modifications; and 1,210 kWh per unit for external lighting modifications in unconditioned common areas. Units receiving efficient refrigerators were still assumed to save 120 kWh based on the BPA estimates. Actual savings presented here through 2004 were calculated by the mix of measure components installed during each program year. Beginning in 2005, savings estimates are calculated by component areas.

   State energy code requirements for lighting power density in common-areas of new multifamily buildings were revised in September 2001. Under the new BPA Conservation Augmentation agreement, full-measure projects permitted under the pre-2001 code save 2,275 kWh per unit, consisting of 945 kWh from shell measures, 65 kWh from lighting in units, 1,195 kWh from lighting outside units, and 70 kWh on average from domestic hot water (145 kWh per tank with a 48% installation rate). Projects permitted post-2001, receiving full measures, and completed before 2005 save 1,080 kWh per unit (reached by excluding the deemed value for lighting outside units), plus calculated common-area lighting savings based on the new 1.0 Watt per square foot baseline. Energy savings for projects receiving only lighting measures are all calculated, using an incandescent baseline for pre-2001 code buildings and the 1.0 Watt per square foot baseline for post-2001 buildings.

   Water heater savings were attributed to the Energy Efficient Water Heater Rebate Program in 1992-1996; savings from water heaters in served buildings are attributed to *Built Smart/LTSGC* in 1997-2003.

   First year energy savings from new participants completing work in each year were: 0 MWh (1992); 2,973 MWh (1993); 1,269 MWh (1994); 1,538 MWh (1995); 1,031 MWh (1996); 2,759 MWh (1997); 2,171 MWh (1998); 6,388 MWh (1999); 5,692 MWh (2000); 8,650 MWh (2001); 8,280 MWh (2002); 4,030 MWh (2003); 3,160 MWh (2004); 2,865 MWh (2005); and 4,070 MWh (2006).

3. Seattle City Light received a grant from the BPA to develop this program. Planning grant activities ended in September 1992 with the signing of the RCA acquisition program contract with the BPA, which took effect in October 1992. The cost data reported in here for 1991-2006 are from the Seattle Financial Management System and Summit System for Work Order/Activity Nos. 70554, 70573, 70582, and 70587; plus water heater rebates (for 1992-1997 and again for 2003) from Work Order/Activity No. 70577.

   Administrative costs for 1993-2006 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 *LTSGC* Program

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

was $6,209, or 4% of total programmatic administrative expenditures; in 1994 it was $34,879 (21%); in 1995 it was $38,297 (21%).

4. One builder incentive payment of $2,000 was made for a manufactured house upgrade. No multifamily incentives were paid in 1992 because work contracted in 1992 was not yet completed by year end; 1992 dollars reported here represent accruals only. Expenses in 1993-1998 include both payments and accruals. Water heater incentives were paid through the Energy Efficient Water Heater Rebate Program through 1997; those amounts were transferred to the Built Smart Program measure expenditures. In 1998-2004 these incentives are accounted directly under the Built Smart Program.

   Participants in the Built Smart Programs pay total installation costs directly to the contractor, while claiming allowed incentives from City Light. Based on the assumption that program incentives average about 80% of total installed costs, presented below are the estimated customer costs.

	Built Smart Programs	
Year	Annual Excess Cost	Cumulative Excess Cost
1992	$ 64,630	$ 64,630
1993	222,710	287,340
1994	43,590	333,930
1995	183,010	513,940
1996	89,280	603,220
1997	103,120	706,340
1998	171,810	878,150
1999	268,970	1,147,120
2000	244,900	1,392,020
2001	450,760	1,842,780
2002	333,370	2,176,150
2003	242,580	2,418,730
2004	225,770	2,644,500
2005	213,860	2,858,360
2006	265,590	3,123,950

5. Note that administrative costs generally would vary with projects contracted (since most labor occurs up to this stage), while measure costs would vary with completions (when payment for measures occurs); but this table indexes both types of costs to completions. Thus the 1992 financial efficiency measures are affected by the ramp-up in project starts. Average installation costs are calculated per "all payments for projects completed in year."

6. This amount in 1992 represents 75% of City Light's administrative expenses invoiced to the BPA. The BPA funded 100% of allowable administrative expenses in 1993-1995.

7. This incentive was funded in 1992 by the BPA at a 75% cost share with Seattle City Light, under the 1991-1992 program development and promotion grant. In 1993 incentive funding by the BPA was increased to 100% of incentives paid to building contractors.

HOMEWISE / LOW-INCOME ELECTRIC PROGRAM

Description

The Low-Income Electric Program (*LIEP*) was operated by the Department of Human Resources (DHR) from 1981 through 1990 and jointly administered with Seattle City Light. In 1991 the program was transferred to the Department of Community Development (DCD); in 1992 it was transferred once more, to the Department of Housing and Human Services (DHHS). At the end of 1998 a new City Office of Housing was established. Beginning in 1999, *LIEP* was operated by this Office as part of REACH services to low-income homes; in 2002 this service was renamed 'HomeWise'.

Through this program, weatherization grants are provided to low-income households for mandatory ceiling, wall, under-floor, and heating duct insulation; electric water heater insulation; and water heater thermostat setbacks. Optional measures include: floor insulation in unheated basements; caulking and weather-stripping; and some smoke detectors. Money for minor home repairs is included to ensure that the electricity savings are realized. Contractors are selected by the program through a public bidding process and are assigned to individual homes to install the measures, while DHHS/OH manages and pays the contractors. In 1995 window retrofits were added to the program as well as blower door testing and air sealing. Funds for minor repairs were pooled so they could be used most effectively. Additional program and administrative efficiencies were also instituted. Beginning 1996, however, window replacements were removed from *LIEP* following expiration of Bonneville Power Administration (BPA) funding. Competitive bidding has been required for all DHHS/OH single-family projects since 1996.

In late 1982, the BPA began offering its regional Energy Buy Back (EBB) program. City Light participated in the EBB program in 1982 to 1983 and from October 1985 through 1996. As *LIEP* provided free weatherization to income-eligible participants, EBB payments from the BPA for weatherization were retained by City Light to offset expenses. In late 1991, City Light began participation in the BPA's Weatherwise funding program. Funding provided by the BPA via the Third Party Financing and Flexibility Agreements began in June 1994 and discontinued at the end of 1996.

Eligible Population

The eligible population for *HomeWise/LIEP* is low-income customers residing in electrically-heated homes (both owner-occupied and rented). Prior to 1986, only single-family homes were served. Beginning in 1986, multiplexes (with two to four residential units) also became eligible.

HOMEWISE / LOW-INCOME ELECTRIC PROGRAMS

Between 1981 and 1984, the *LIEP* household income limit was set at 90% of the SMSA median income. In 1985 the income limits were changed to 70% of the Washington State median income for owner-occupants and 125% of the federally defined poverty level for renters. In 2002 the income guidelines for *HomeWise* were redefined once more to 80% of the PMSA median income for owner-occupants and 60% of the PMSA median income for renters.

Lifetime of Conservation Measures Installed: 30 years

Electricity Savings

The average single-family building receiving a weatherization grant from *LIEP* during 1988-1994 saved about 2,450 kilowatt-hours (kWh) per year. These savings represented 13% of the typical electrically-heated single-family home's energy use (19,580 kWh in 1990). During 1995 savings were raised 3,366 kWh to incorporate the new window retrofit measure. This measure was dropped in 1996 and savings were revised to 1,839 kWh per year, in parallel with revisions to the Warm Home Program. These savings represent 10% of the typical home's energy use (18,363 kWh in 2000).

Multiplex buildings in this program save 1,308 kWh per unit annually during 1988-1994. These savings represent 10% of the typical electrically-heated multiplex's energy use (a weighted average across units of 12,493 kWh in 1990). During 1995 savings were raised to 1,757 kWh per unit to incorporate the new window retrofit measure. This measure was dropped in 1996 and savings were revised to 1,353 kWh per year, in parallel with revisions to the Warm Home Program. These savings represent 11% of the typical unit's energy use (12,374 kWh in 2000).

In 2006 the energy savings from cumulative (1981-2006) participants were 35,457 megawatt-hours (MWh). The load reduction in 2006 due to this program was 4.048 average megawatts (aMW).

HOMEWISE / LOW-INCOME ELECTRIC PROGRAMS

ELECTRICITY SAVINGS FOR THE LOW-INCOME ELECTRIC PROGRAM

Year	*Building Type* (1)	*Buildings by Year* (2)	*Units by Year*	*kWh Savings per Bldg* (3)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
1981	Single Family	135	135	3,400	459	0.052
1982	Single Family	1,015	1,015	3,400	3,910	0.446
1983	Single Family	2,410	2,410	3,400	12,104	1.382
1984	Single Family	1,836	1,836	3,400	18,346	2.094
1985	Single Family	1,024	1,024	3,100	21,521	2.457
1986	Single Family	1,104	1,104	3,100	24,943	2.847
1987	Single Family	625	625	2,700	26,631	3.040
	Multiplex	61	197	4,224	258	0.029
	Annual Total	686	822	—	26,888	3.069
1988	Single Family	385	385	2,450	27,574	3.148
	Multiplex	66	171	3,389	481	0.055
	Annual Total	451	556	—	28,055	3.203
1989	Single Family	425	425	2,450	28,615	3.267
	Multiplex	73	182	3,261	719	0.082
	Annual Total	498	607	—	29,334	3.349
1990	Single Family	400	400	2,450	29,595	3.378
	Multiplex	51	120	3,078	876	0.100
	Annual Total	451	520	—	30,471	3.478
1991	Single Family	314	314	2,450	30,364	3.466
	Multiplex	57	166	3,809	1,093	0.125
	Annual Total	371	480	—	31,458	3.591
1992	Single Family	335	335	2,450	31,185	3.560
	Multiplex	31	76	3,207	1,193	0.136
	Annual Total	366	411	—	32,378	3.696
1993	Single Family	154	154	2,450	31,562	3.603
	Multiplex	18	50	3,633	1,258	0.144
	Annual Total	172	204	—	32,821	3.747
1994	Single Family	127	127	2,450	31,874	3.639
	Multiplex	27	80	3,876	1,363	0.156
	Annual Total	154	207	—	33,236	3.794
1995	Single Family	170	170	3,366	32,446	3.704
	Multiplex	19	56	5,179	1,461	0.167
	Annual Total	189	226	—	33,907	3.871
1996	Single Family	85	85	1,839	32,602	3.722
	Multiplex	7	20	3,866	1,488	0.170
	Annual Total	92	105	—	34,090	3.892

(Cont'd.)

HOMEWISE / LOW-INCOME ELECTRIC PROGRAMS

ELECTRICITY SAVINGS FOR THE LOW-INCOME ELECTRIC PROGRAM

(Continued)

Year	Building Type (1)	Buildings by Year (2)	Units by Year	kWh Savings per Bldg (3)	MWh Savings in Year	Avg. MW Load Reduction in Year
1997	Single Family	96	96	1,839	32,779	3.742
	Multiplex	6	18	4,059	1,513	0.173
	Annual Total	102	114	—	34,291	3.915
1998	Single Family	83	83	1,839	32,931	3.759
	Multiplex	9	22	3,307	1,543	0.176
	Annual Total	92	105	—	34,474	3.935
1999	Single Family	74	74	1,839	33,067	3.775
	Multiplex	4	10	3,383	1,556	0.178
	Annual Total	78	84	—	34,623	3.952
2000	Single Family	28	28	1,839	33,119	3.781
	Multiplex	5	12	3,247	1,572	0.179
	Annual Total	33	40	—	34,691	3.960
2001	Single Family	55	55	1,839	33,220	3.792
	Multiplex	4	12	4,059	1,589	0.181
	Annual Total	59	67	—	34,808	3.974
2002	Single Family	53	53	1,839	33,317	3.803
	Multiplex	6	15	3,383	1,609	0.184
	Annual Total	59	68	—	34,926	3.987
2003	Single Family	65	65	1,839	33,437	3.817
	Multiplex	3	10	4,510	1,622	0.185
	Annual Total	68	75	—	35,059	4.002
2004	Single Family	75	75	1,839	33,575	3.833
	Multiplex	0	0	—	1,622	0.185
	Annual Total	75	75	—	35,197	4.018
2005	Single Family	78	78	1,839	33,718	3.849
	Multiplex	4	10	3,383	1,636	0.187
	Annual Total	81	87	—	35,354	4.036
2006	Single Family	53	53	1839	33816	3.860
	Multiplex	1	4	3383	1641	0.187
	Annual Total	54	57	—	35457	4.048
Program Totals 1981-2006:						
	Single Family	11,204	11,204	—	716,710	—
	Multiplex	452	1,231	—	26,093	—
	All Buildings	11,656	12,435	—	742,803	—
Electricity Savings Since Start of Program:					**742,803**	**MWh**

HOMEWISE / LOW-INCOME ELECTRIC PROGRAMS

Program Expenditures

The program expenditures from 1981 through 2006 for administration and measures installation totaled $34,992,407. This represents the cost to the utility, and not the total resource cost. The average cost of measure installation per unit rose significantly in 1995 due to the introduction of window retrofits in this year. The average cost dropped in 1996 when window measures were removed from the program offering, but rose again in 1997-2001 due to the adoption of public works bidding requirements, as recommended by the City Law Department, and particularly the effect of prevailing wage requirements.

The Bonneville Power Administration, during the period 1982 through 1998 (excluding 1984), provided $6,288,181 in funding.

PROGRAM EXPENDITURES FOR THE LOW-INCOME ELECTRIC PROGRAM

Year	*Seattle City Light Admini-stration* (4)	*Office of Housing Admini-stration* (5)	*Total Admini-stration*	*Measure Installation* (6)	*Total Expenditures*
1981	$465,530	$147,299	$612,829	$106,231	$719,060
1982	12,375	757,583	769,958	1,579,540	2,349,498
1983	83,221	996,339	1,079,560	3,531,382	4,610,942
1984	78,884	1,205,449	1,284,333	2,627,758	3,912,091
1985	101,827	1,336,903	1,438,730	2,220,759	3,659,489
1986	87,836	867,694	955,530	1,662,400	2,617,930
1987	44,415	702,353	746,768	1,242,000	1,988,768
1988	22,519	660,944	683,463	926,693	1,610,156
1989	38,357	703,178	741,535	897,995	1,639,530
1990	32,268	596,002	628,270	687,994	1,316,264
1991	35,819	635,485	671,304	740,139	1,411,443
1992	33,412	686,138	719,550	588,696	1,308,246
1993	49,704	370,914	420,618	306,941	727,559
1994	33,156	384,569	417,725	324,678	742,403
1995	24,904	529,750	554,654	819,524	1,374,178
1996	37,347	301,632	338,979	242,459	581,438
1997	27,842	299,504	327,346	415,011	742,357
1998	5,022	330,573	335,595	305,162	640,757
1999	4,151	125,427	129,578	329,688	459,266
2000	49,033	126,012	175,045	155,944	330,989
2001	4,280	171,904	176,184	219,671	395,855
2002	12,288	132,003	144,291	155,427	299,718
2003	18,294	135,303	153,597	194,923	348,520
2004	12,766	138,686	151,452	202,851	354,303
2005	11,954	175,715	187,669	282,314	469,983
2006	11,383	180,108	191,491	190,173	381,664
Total	**$1,338,587**	**$12,697,467**	**$14,036,054**	**$20,956,353**	**$34,992,4079**

HOMEWISE / LOW-INCOME ELECTRIC PROGRAMS

FINANCIAL EFFICIENCY MEASURES FOR THE LOW-INCOME ELECTRIC PROGRAM
— Per Completed Unit — (7)

Year	*Average Total Administration*	*Average Installation*	*Average Total Expenditure*	*Administration as a % of Total Expenditures*
1981	$ 4,539	$ 787	$ 5,326	85.2%
1982	759	1,556	2,315	32.8
1983	448	1,465	1,913	23.4
1984	700	1,431	2,131	32.8
1985	1,405	2,169	3,574	39.3
1986	866	1,506	2,371	36.5
1987	908	1,511	2,419	37.5
1988	1,229	1,667	2,896	42.4
1989	1,222	1,479	2,701	45.2
1990	1,208	1,323	2,531	47.7
1991	1,399	1,542	2,941	47.6
1992	1,751	1,432	3,183	55.0
1993 (7)	2,062	1,505	3,566	57.8
1994	2,018	1,568	3,586	56.3
1995	2,454	3,626	6,080	40.4
1996	3,228	2,309	5,538	58.3
1997	2,871	3,640	6,512	44.1
1998	3,196	2,906	6,102	52.4
1999	1,543	3,925	5,467	28.2
2000	4,376	3,899	8,275	52.9
2001	2,630	3,279	5,908	44.5
2002	2,122	2,286	4,408	48.1
2003	2,048	2,599	4,647	44.1
2004	2,019	2,705	4,724	42.7
2005	2,133	3,208	5,341	39.9
2006	3,359	3,336	6,696	50.2
Average 1981-2006	**$1,129**	**$1,685**	**$2,814**	**40.1%**

HOMEWISE / LOW-INCOME ELECTRIC PROGRAMS

BPA FUNDING FOR THE LOW-INCOME ELECTRIC PROGRAM (8)

Year	***Administration*** (9)	***Weatherization***	***Total Funding***
1981	$0	$0	$0
1982	100,480	479,044	579,524
1983	250,720	1,425,234	1,675,954
1984	0	0	0
1985	11,620	29,540	41,160
1986	242,410	856,393	1,098,803
1987	107,365	402,790	510,155
1988	74,127	323,666	397,793
1989	42,705	272,473	315,178
1990	21,207	101,711	122,918
1991	33,556	214,469	248,025
1992	28,563	194,437	223,000
1993	43,027	248,579	291,606
1994	0	295,425	295,425
1995	8,820	224,631	233,451
1996	0	259,065	259,065
1997	0	– 1,282	– 1,282
1998	0	– 2,594	– 2,594
1999-2006	0	0	0
Total	**$964,600**	**$5,323,581**	**$6,288,181**

Notes

1. Multiplex buildings contain two to four residential units.

   The typical energy usage figures are from the Seattle City Light "1990 Residential Customer Characteristics Survey" (A. Geist, Finance Division, 1992) and the "2000 Residential Customer Characteristics Survey" (A. Geist, Finance Division, 2002.)

2. Participation figures include the number of homes where weatherization work was completed. These figures came from program records in the Energy Management Services/Conservation Resources Division, Community Conservation Section.

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From 1987 onward, the program has served 1,217 units in 447 multiplex buildings of these types:

	Duplexes	Triplexes	Fourplexes	Total Multiplexes	Total Units
1987	19	9	33	61	197
1988	45	3	18	66	171
1989	49	12	12	73	182
1990	39	6	6	51	120
1991	25	12	20	57	166
1992	19	10	2	31	76
1993	9	4	5	18	50
1994	12	4	11	27	80
1995	8	4	7	19	56
1996	6	0	2	7	20
1997	4	2	1	6	18
1998	7	0	2	9	22
1999	3	0	1	4	10
2000	3	2	0	5	12
2001	2	0	2	4	12
2002	3	3	0	6	15
2003	1	0	2	3	10
2004	0	0	0	0	0
2005	3	0	1	4	10
2006	0	0	1	1	4

3. Energy savings calculations for single-family buildings (1981-84) are documented in the *Evaluation of the Low-Income Electric Program* (July 1983). Buildings weatherized by *LIEP* typically save more energy than those weatherized by *HELP*, due to more measures found necessary for the *LIEP* participants.

Program records for 1985 show a decrease of 28% in the number of homes receiving wall insulation compared to 1983. As a result, the average annual savings estimate for single-family buildings has been reduced by 300 kilowatt-hours for 1985 and 1986. A review of evaluations performed for the BPA's Residential Weatherization Program from 1986 through 1991, which included Seattle *LIEP* participants, and of the federal Weatherization Assistance Program, suggests that energy savings declined further to about 2,450 kWh in 1988 and later years. An intermediate value has been adopted for 1987 (2,700 kWh).

With the addition of window retrofits in 1995, energy savings were revised upward to 3,366 kWh per single family unit. When the window measure was deleted for 1996-1997 and the program was restructured to parallel the Warm Home Program, energy savings were revised again to 1,839 kWh per single family unit.

The average electricity savings per unit in 1987 for multiplex buildings in *HELP* were 1,308 annual kilowatt-hours (see *Energy Savings for Multiplex Buildings in the Home Energy Loan Program*, September 1988). With the addition of window retrofits in 1995, energy savings were revised upward to 1,757 kWh per multiplex unit. When the window measure was deleted for 1996-1997 and the program was restructured to parallel the Warm Home Program, energy savings were revised again to 1,353 kWh per multiplex unit.

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The average annual electricity savings per multiplex building in *HomeWise/LIEP* were thus 4,224 kilowatt-hours in 1987; 3,389 in 1988; 3,261 in 1989; 3,078 in 1990; 3,809 in 1991; 3,207 in 1992; 3,633 in 1993; 3,876 in 1994; 5,179 in 1995; 3,866 in 1996; 4,059 kWh in 1997; 3,307 kWh in 1998; 3,383 kWh in 1999; 3,247 kWh in 2000; 4,059 kWh in 2001; 3,383 kWh in 2002; 4,510 kWh in 2003; 0 kWh in 2004; 3,383 kWh in 2005; and 5,412 kWh in 2006.

Total savings from *HomeWise/LIEP* multiplex buildings in the first year after weatherization were estimated to be 258 megawatt-hours in 1987; 224 in 1988; 238 in 1989; 157 in 1990; 217 in 1991; 99 in 1992; 65 in 1993; 105 in 1994; 98 in 1995; 27 in 1996; 24 MWh in 1997; 30 MWh in 1998; 14 MWh in 1999; 16 MWh in 2000; 16 MWh in 2001; 20 MWh in 2002; 14 MWh in 2003; and 0 MWh in 2004; 14 MWh in 2005; and 5 MWh in 2006.

First year energy savings from all new participants combined who completed work in each year were: 459 MWh (1981); 3,451 MWh (1982); 8,194 MWh (1983); 6,242 MWh (1984); 3,174 MWh (1985); 3,422 MWh (1986); 1,945 MWh (1987); 1,167 MWh (1988); 1,279 MWh (1989); 1,137 MWh (1990); 986 MWh (1991); 920 MWh (1992); 443 MWh (1993); 416 MWh (1994); 671 MWh (1995); 183 MWh (1996); 201 MWh (1997); 182 MWh (1998); 150 MWh (1999); 68 MWh (2000); 117 MWh (2001); 118 MWh (2002); 133 MWh (2003); 138 MWh (2004); 157 MWh (2005); and 103 MWh in 2006.

4. Program expenditures for City Light Energy Management Services/Conservation Resources Division administration includes the following: salaries, wages, and labor-related costs for field staff and office support; paid media space; contracted operations and maintenance; and data processing. In 2000 a special one-time payment was made to a Central Area youth organization to promote low-income assistance services and programs, including conservation programs, in that neighborhood.

   The source of these data from 1981 through 1990 is City Light MIS reports for Work Order No. 70578. City Light administrative costs were apportioned between *LIEP* and the Multifamily Conservation Program (*MFC*) in the same ratios described below in Note 5. Administrative cost data for 1991 through 2006 are from the Seattle Financial Management System and the Summit System for Work Order/Activity Nos. 70578 and 70514. These figures do not reflect BPA funding.

   Administrative costs for 1993-2006 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 *LIEP* was $10,865, or 22% of Seattle City Light's total programmatic administrative expenditures; in 1994 it was $8,799 (27%); in 1995 it was $8,638 (35%).

5. Administrative direct cost data came from the DHHS/OH monthly invoices for labor, installation costs, and other program expenses. Beginning in 1986, the indirect administration charges were subtracted from the total to more closely match reported *HELP* costs (Office of Management and Budget (OMB) recommendation, May 1988). Beginning in 1993, the indirect charges are once again reported in this table, based on changes in Seattle City Light accounting for A&G service overhead charges in other programs. This change more closely matches reported *Warm Home Program* costs.

   The indirect charges were $234,872 in 1986; $146,797 in 1987; $112,722 in 1988; $99,273 in 1989; $100,922 in 1990; $190,015 in 1991; $243,136 in 1992; $58,373 in 1993; $61,212 in 1994; $52,373 in 1995; $41,335 in 1996; $39,207 in 1997; $40,854 in 1998; $14,153 in 1999; $14,649 in 2000; $0 in 2001-2003; $22,931 in 2004; $30,628 in 2005; and $30,454 in 2006.

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Up until 1995, the DHHS did not separately account for administration costs between *LIEP* (serving single-family and multiplex buildings) and the DHHS Multifamily Conservation Program. Administration expenses from monthly invoices were allocated between *LIEP* and *MFC* in the proportions of 87/13 in 1986; 74/26 in 1987; 67/33 in 1988; 64/36 in 1989; 67/33 in 1990, 1991, and 1992; and 33/67 in 1993-1994 (according to the DHHS program manager and Contracts Section staff). Beginning in 1995, administrative costs were reported separately for the two low-income programs.

6. A change was made in the method for calculating DHR/DCD installation expenditures for *LIEP* as reported for 1986 and later years. The *LIEP* expenditures reported in the table from 1981-1985 were based on the date of invoice payment by City Light. This method did not enable a comparison between annual budget goals and the reported program expenditures. For instance, most work contracted by DHR in the fourth quarter of 1984 (under the 1984 budget) was not actually paid until well into 1985. Therefore, program expenditures reported for 1985 combined the 1984 and 1985 budget years.

   A revised method for reporting installation expenditures has been used for 1986 and later years. Program expenditures are now reported by the year in which the funds are committed; e.g., expenditures reported in 1986 are for work orders released and costs allocated in 1986 regardless of whether City Light was invoiced by DHR in 1986 or 1987. Due to this change in calculation procedures, the 1985 figures now also include some expenditures allocated in 1985 but invoiced and paid in 1986; thus, 1985 expenses appear slightly inflated.

7. There is a discontinuity in this table due to the inclusion in 1993-1995 of indirect administrative costs that were formerly excluded (see Note 5). The City Light administrative cost in 2000 was elevated due to one-time marketing costs.

8. These data are based on invoices to the BPA. City Light did not participate in the regional EBB program in 1984. City Light began to participate in the BPA Weatherwise program in October 1991. The negative funding in 1997-1998 reflects invoice adjustments for year-end 1996, for residential units revealed by program audits to be non-electrically heated.

9. The BPA reimbursement also includes costs for radon monitoring, training, and water-heater tank wraps: $350 in 1985; $8,820 in 1986; $5,130 in 1987; $1,370 in 1988; $2,200 in 1989; $860 in 1990 (for radon monitoring only); $690 in 1991; $265 in 1992 (for radon monitoring and tank wraps); and $0 in 1993-1996.

MULTIFAMILY CONSERVATION PROGRAMS

Description

The Multifamily Conservation (*MFC*) Programs began in 1986. They were preceded by a 15-building research and demonstration project in 1985. The *MFC* Programs provide financial and technical help to owners of apartment buildings with electric space heat, for building insulation, lighting and hot-water conservation measures. The multifamily buildings retrofitted through these programs have five or more units. The available conservation measures include: double-glazed replacement windows; attic or flat roof insulation, under-floor insulation, wall insulation; caulking and weather-stripping; efficient-flow showerheads, water heater temperature setbacks, pipe and duct wraps; and common-area lighting modifications. In the early years of the program, measures also included window conversions and water heater insulation wraps. Window conversion and storm window retrofits have not been allowed since 1992 under NFRC (National Fenestration Rating Council) requirements. Actual measures installed depend upon the condition of the building, feasibility and cost effectiveness, and owner preferences.

Partial funding has been received from the Bonneville Power Administration (BPA) through its regional Energy Buy Back (EBB) program in 1986-1991, and through the Weatherwise funding program in 1991-1993. In 1986 the BPA reimbursed a percentage of weatherization costs, resulting in lower loan balances for standard-income building owners and defraying some program costs for low-income building grants. A Targeted Acquisition contract was signed in March 1993 between Seattle City Light and the Bonneville Power Administration. Under this contract the BPA funded measures installed by the Common-Area Lighting and Standard-Income (whole-building) Programs. Funding continued under the BPA Weatherwise program for measures installed by the Low-Income (whole-building) Program. Funding provided by the BPA via the Third Party Financing and Flexibility Agreements began in June 1994 and ended by 1998.

Low-Income Program: Owners of multifamily buildings with predominantly low-income tenants were referred to the Department of Human Resources (DHR) from 1986 through 1990 for weatherization, in a program jointly administered with and funded by Seattle City Light. In 1991 the program was transferred to the Department of Community Development (DCD); and in 1992 it was incorporated into the Department of Housing and Human Services (DHHS). At the end of 1998 a new City Office of Housing was established. Beginning in 1999, the Low-Income Multifamily Program is being operated by this Office as part of REACH (now called HomeWise) services to low-income tenants. From 1981 through 1995, low-income building owners received a full-cost grant, conditional upon agreement by the owner not to raise rents due to conservation measures for a period of five years (later reduced to three years). In 2002 the period of this 'covenant' rose to ten years, with a change in income guidelines (while the three-year covenant still applies to projects meeting the previous, more stringent guidelines). Beginning in 1996,

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owners were required to pay 20% of window costs; this cost-sharing requirement was dropped at the end of 1998 in response to difficulties in recruiting participants.

In the Low-Income Multifamily Program, contractors were previously selected by the program through a public bidding process and assigned to individual buildings to install the measures, while DHHS/OH manages and pays the contractors. The Low-Income Program began to install common-area lighting measures in 1988. Competitive bidding among contractors was implemented for a limited number of projects during 1995 in an effort to reduce costs. Competitive bidding coordinated through the Seattle Board of Public Works was required for all DHHS/OH multifamily projects in 1996-2001. A separate bidding process was held for lighting retrofit measures. In 2002 the bidding process was changed. Now low-income housing providers select and pay their own contractors directly, and are reimbursed later by OH after work is complete and OH inspections have been conducted.

Standard-Income Program: At the start of the Standard-Income Multifamily Program, building owners served with measures that include weatherization qualified for a 10-year, zero-interest loan, with five-year deferred payment and a 50% discount for first-year payoff. In 1996 the period on this loan was reduced to 6 years with the first year deferred. A 50% discount for payoff during the first year remained in effect for 1996-1997. In mid-1998 a program financing change was made to encourage 'cash-outs' rather than use of the loan option. The option of cashing out a zero-interest loan in the first year and still receiving the 50% discount was eliminated. Instead an early-action discount was offered if customers made the choice to participate within 30 days of contractor bid submittals. The $4.50 incentive amount for windows rose to $6.00 per square foot of glass if the project proceeded before this deadline. The early-action discount was successful in expediting projects through the program. However, in 2002 the early-action discount were eliminated and the incentive per square of glass dropped to $5.00 including tax, while customers are still offered a 50% discount on the cost of insulation measures. City Light continues to pay for up to 70% of the installed cost for common-area lighting measures. In 2004, City Light began to offer rebates for replacement of older generation double-pane aluminum-frame windows (which often had only a ¼-inch gap between panes); the program now installs predominantly vinyl-frame windows.

In the Standard-Income Program, City Light has contractual agreements with pre-approved contractors, from whom individual building owners or property managers may select. The Utility coordinates work and pays the City's portion of costs to contractors. Starting in 1997, owners have been required to pay directly to window contractors any costs exceeding Seattle City Light's financing limit; before that time, excess costs were channeled through the Utility. In 1987-1996, the BPA continued to reimburse some weatherization costs for low-income buildings. In 1995-1997 participants in non-low-income buildings benefited from BPA funds.

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Common-Area Lighting Program: Beginning in 1993, Seattle City Light began to offer financial and technical help for common-area lighting modifications in buildings not likely to receive whole-building measures. These include oil and gas heated buildings, condominiums of all heat sources, and buildings constructed after the double-glazing code went into effect in 1980. The Common-Area Lighting Program pays for up to 70% of the installed measure cost, and offers a 70% discount for up-front payment. No participants in this group opted to take the 10-year, zero-interest loan and the loan option was eliminated in 1996. During the final quarter of 2002 a pilot test was conducted utilizing a rebate format rather than the traditional contracting process. Due to the success of that pilot, the rebate format was adopted for all Common-Area Lighting projects beginning in 2003.

Low-Income Utility Tax and State Grant Programs: In 2002-2003, Seattle City Light applied a special utility tax 'windfall' to installing energy efficient common-area lighting and in-unit space-heat thermostats, in low-income affordable housing operated by the Seattle Housing Authority, King County Housing Authority, and several other private low-income housing providers. Over half the units served by this initiative in 2002-2003 received both measures. In 2005-2006 an additional group of buildings received super-efficient refrigerator replacements.

Eligible Population

At the end of 1991, in the City Light service area there were 3,164 electrically-heated multifamily buildings built before 1980 that contain five or more units, for a total of 63,281 apartment and condominium units. At the time it was estimated that in 25% of the buildings at least two-thirds of the residents had incomes at or below 125% of the federal poverty level guidelines. From 1986 through 1998, the Low-Income Multifamily Program required at least two-thirds of the residents to have incomes at or below 125% of the federal poverty level guidelines. In 1999 the definition was modified to half of residents at or below 125% of the federal poverty level guidelines, and in 2002 the definition was reset again to 60% of the PMSA median income.

The eligible population for the Multifamily Conservation Programs in 1991 thus included about 2,373 standard-income buildings (47,461 units) and 791 low-income buildings (15,820 units). About 17,104 low-income units had been served by the end of 2006—108% of units estimated eligible for service in 1991. Seattle City Light's goal has been to serve 29,426 standard-income units (62% of the 1991 market pool) with weatherization measures; 24,041 had been served by the end of 2006—82% of the units estimated eligible in 1991, or 51% of the market pool.

In 1991 there were about 2,632 other buildings (52,646 units) that were built since 1980, were condominiums, or had nonelectric (gas or oil) space heat. The pool for common-area lighting measures in these types of buildings has grown somewhat since 1991 with increasing new-construction activity, although City Light has been promoting efficient lighting in new

construction through the *Built Smart* programs since 1992. (1) Moreover, since 2001 the Washington State Energy Code requires new multifamily buildings to install common-area lighting with a power density of less than one Watt per square foot of floor area. Seattle City Light provided common-area lighting measures for buildings containing 39,726 units by the end of 2006—76% of the units estimated eligible for service in 1991.

Lifetime of Conservation Measures Installed

The lifetime of measures ranges from 16 years for common-area lighting to 30 years for dwelling-area measures; the weighted average lifetime is 25 years in the standard-income and low-income whole-building programs.

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 will be realized when the projects are completed. Multifamily retrofit projects contracted in one year may not be completed until the next. The second table presents savings realized from projects completed during the calendar year.

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 average building currently receiving whole-building conservation measures from the Standard-Income Multifamily Programs saves about 1,768 kilowatt-hours (kWh) per residential unit annually. Of this amount, about 64% is saved by building tenants (the remainder, saved on common-area meters, benefits building owners). These tenant savings represent 14% of the typical electrically-heated multifamily unit's energy use (8,347 kWh in 1990; 8,112 kWh in 2000).

The average building currently receiving whole-building conservation measures from the Low-Income Multifamily Programs saves about 1,215 kWh per residential unit annually. Of this amount, about 66% is saved by building tenants (the remainder, saved on common-area meters, benefits building owners). These tenant savings represent 10% of the typical electrically-heated

MULTIFAMILY CONSERVATION PROGRAMS

multifamily unit's energy use (8,347 kWh in 1990; 8,112 kWh in 2000). Net savings are lower in low-income than standard-income buildings due mainly to energy use reductions in the remaining market pool of unserved buildings.

The average building receiving only common-area lighting measures from the Multifamily Common-Area Lighting Program during 1993-2002 saves about 700 kWh per residential unit annually. These common-area savings, benefiting building owners, represent nine percent (9%) of the typical multifamily unit's energy use, regardless of heat source (7,769 kWh in 1990; 7,835 kWh in 2000). Energy savings in 2003-2006, based on engineering calculations, average 465 kWh per unit.

The average building receiving common-area lighting measures from the Low-Income Utility Tax Program saves about 270 kWh per residential unit annually, while the average residential unit receiving a thermostat retrofit through this program saves about 200 kWh per unit. Low-income units receiving super-efficient refrigerator replacements in 2005 save 700 kWh annually. These were funded by a Washington Consumer Energy Fund grant administered by the Seattle Foundation.

First year savings from projects contracted in 2006 by the MFC Programs were 2,779 megawatt-hours (MWh). About 75% of these projects were completed by yearend. When projects contracted in 2006 are completed, they will bring the *MFC* load reduction to 10.253 average megawatts. By program, these contracted first-year savings are: 1,428 MWh from new Standard-Income projects, 643 MWh from Low-Income projects, and 765 MWh from Common-Area Lighting projects.

First year energy savings from projects completed in 2006 by the *MFC* Programs totaled 2,809 MWh. By program, these were: 1,309 MWh from completed Standard-Income projects, 643 MWh from Low-Income projects, and 858 from Common-Area Lighting projects.

In 2006 the energy savings from cumulative (1986-2006) *MFC* Programs completed projects were 88,979 megawatt-hours (MWh). The load reduction in 2006 due to this program was 10.157 average megawatts (aMW).

Program Expenditures

The program expenditures from 1986 through 2006 for administration and measures installation totaled $74,174,773. Total expenditures in 2006 were $2,397,655. This represents the cost to the utility, and not the total resource cost. The Bonneville Power Administration provided $8,841,234 in total funding during thirteen of these twenty years.

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ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Contracted Projects —

Year	*Contracted Buildings by Year* (2)	*Contracted Units by Year*	*Cumulative Units* (2)	*kWh First Year Savings per Unit* (3)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Standard-Income Multifamily Program:						
1986	25	285	285	1,213	346	0.039
1987	39	761	1,046	1,628	1,585	0.181
1988	52	932	1,978	1,322	2,817	0.322
1989	62	972	2,950	1,534	4,308	0.492
1990	66	1,022	3,972	1,937	6,287	0.718
1991	57	1,095	5,067	1,696	8,144	0.930
1992	53	1,014	6,081	1,433	9,598	1.096
1993	131	2,022	8,103	1,840	13,318	1.520
1994	115	2,000	10,103	1,738	16,794	1.917
1995	109	2,111	12,214	1,771	20,533	2.344
1996	67	1,223	13,437	1,678	22,585	2.578
1997	76	1,314	14,751	1,725	24,851	2.837
1998	70	1,387	16,138	1,811	27,363	3.124
1999	71	1,372	17,510	1,768	29,789	3.401
2000	61	1,027	18,537	1,768	31,605	3.608
2001	81	1,177	19,714	1,768	33,686	3.845
2002	75	1,208	20,922	1,768	35,821	4.089
2003	58	756	21,678	1,768	37,093	4.234
2004	55	742	22,420	1,799	38,427	4.387
2005	76	1,056	23,476	1,581	40,096	4.577
2006	54	960	24,436	1,428	41,468	4.734

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Contracted Projects —

(Continued)

Year	*Contracted Buildings by Year* (2)	*Contracted Units by Year*	*Cumulative Units* (2)	*kWh First Year Savings per Unit* (3)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Low-Income Multifamily Program:						
1986	23	264	264	1,025	271	0.031
1987	62	929	1,193	1,089	1,282	0.146
1988	57	894	2,087	1,638	2,747	0.314
1989	60	891	2,978	1,015	3,651	0.417
1990	62	832	3,810	1,219	4,665	0.533
1991	46	790	4,600	1,038	5,485	0.626
1992	65	1,021	5,621	1,265	6,777	0.774
1993	43	847	6,468	1,237	7,824	0.893
1994	55	1,278	7,746	1,312	9,501	1.085
1995	43	1,033	8,779	1,298	10,842	1.238
1996	28	469	9,248	1,164	11,388	1.300
1997	16	725	9,973	1,231	12,280	1.402
1998	12	626	10,599	984	12,896	1.472
1999	17	830	11,429	994	13,721	1.566
2000	7	708	12,137	1,215	14,581	1.665
2001	10	389	12,526	1,215	15,054	1.718
2002	13	715	13,241	1,215	15,923	1.818
2003	18	1,280	14,521	1,215	17,478	1.995
2004	12	1,320	15,841	841	18,588	2.122
2005	10	622	16,463	920	19,161	2.187
2006	11	641	17,104	1,003	19,803	2.261
Low-Income Utility-Tax & State Grant Programs:						
2002	118	6,478	6,478	312	2,024	0.231
2003	15	892	7,370	419	2,398	0.274
2004	0	0	7,370	—	2,398	0.274
2005	40	513	7,883	700	2,757	0.315
2006	9	98	7,981	700	2,826	0.323

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Contracted Projects —

(Continued)

Year	*Contracted Buildings by Year* (2)	*Contracted Units by Year*	*Cumulative Units* (2)	*kWh First Year Savings per Unit* (3)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Common-Area Lighting Program:						
1993	54	2,106	2,106	855	1,801	0.206
1994	148	3,790	5,896	700	4,454	0.508
1995	187	4,127	10,023	700	7,343	0.838
1996	186	4,272	14,295	700	10,333	1.180
1997	129	4,289	18,584	700	13,335	1.522
1998	115	2,408	20,992	804	15,271	1.743
1999	55	2,333	23,325	700	16,904	1.930
2000	24	750	24,075	700	17,429	1.990
2001	109	2,534	26,609	700	19,203	2.192
2002	54	1,616	28,225	700	20,334	2.321
2003	148	3,800	32,025	429	21,964	2.507
2004	118	3,457	35,482	557	23,891	2.727
2005	88	2,046	37,528	553	25,023	2.856
2006	101	2,390	39,918	320	25,788	2.944
Programs Total:						
1986	48	549	549	1,123	616	0.070
1987	101	1,690	2,239	1,332	2,867	0.327
1988	109	1,826	4,065	1,477	5,563	0.635
1989	122	1,863	5,928	1,286	7,959	0.909
1990	128	1,854	7,782	1,615	10,953	1.250
1991	103	1,885	9,667	1,420	13,630	1.556
1992	118	2,035	11,702	1,349	16,374	1.869
1993	228	4,975	16,677	1,338	22,943	2.619
1994	318	7,068	23,745	1,104	30,749	3.510
1995	339	7,271	31,016	1,096	38,717	4.420
1996	281	5,964	36,980	937	44,305	5.058
1997	221	6,328	43,308	974	50,467	5.761
1998	197	4,421	47,729	1,145	55,531	6.339
1999	143	4,535	52,264	1,077	60,414	6.897
2000	92	2,485	54,749	1,288	63,615	7.262
2001	200	4,100	58,849	1,055	67,943	7.756
2002	260	10,017	68,866	615	74,102	8.459
2003	239	6,728	75,594	728	78,933	9.011
2004	185	5,519	81,113	792	83,304	9.510
2005	223	4,237	85,350	881	87,037	9.936
2006	166	3,991	89,341	696	89,816	10.253
Potential Electricity Savings Since Start of Program:					**905,838**	**MWh**

MULTIFAMILY CONSERVATION PROGRAMS

ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
——Completed Projects —

Year	*Completed Buildings by Year* (4)	*Completed Units by Year*	*Cumulative Units* (4)	*kWh First Year Savings per Unit* (5)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Standard-Income Multifamily Program:						
1986	24	257	257	1,213	312	0.036
1987	25	399	656	1,628	961	0.110
1988	54	1,122	1,778	1,322	2,445	0.279
1989	32	462	2,240	1,534	3,153	0.360
1990	73	1,020	3,260	1,937	5,129	0.586
1991	66	1,246	4,506	1,696	7,242	0.827
1992	58	1,204	5,710	1,433	8,968	1.024
1993	66	942	6,652	1,840	10,701	1.222
1994	118	1,996	8,648	1,738	14,170	1.618
1995	150	2,664	11,312	1,771	18,888	2.156
1996	62	1,210	12,522	1,678	20,918	2.388
1997	71	1,541	14,063	1,725	23,576	2.691
1998	67	968	15,031	1,811	25,330	2.891
1999	72	1,508	16,539	1,768	27,996	3.196
2000	80	1,238	17,777	1,768	30,184	3.446
2001	83	1,400	19,177	1,768	32,660	3.728
2002	82	1,328	20,505	1,768	35,008	3.996
2003	74	1,023	21,528	1,768	36,818	4.203
2004	46	567	22,095	1,747	37,807	4.316
2005	80	1,131	23,226	1,646	39,668	4.528
2006	45	815	24,041	1,606	40,977	4.678

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
——Completed Projects —

(Continued)

Year	*Completed Buildings by Year* (4)	*Completed Units by Year*	*Cumulative Units* (4)	*kWh First Year Savings per Unit* (5)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Low-Income Multifamily Program:						
1986	23	264	264	1,025	271	0.031
1987	62	929	1,193	1,089	1,282	0.146
1988	57	894	2,087	1,638	2,747	0.314
1989	60	891	2,978	1,015	3,651	0.417
1990	62	832	3,810	1,219	4,665	0.533
1991	46	790	4,600	1,038	5,485	0.626
1992	65	1,021	5,621	1,265	6,777	0.774
1993	43	847	6,468	1,237	7,824	0.893
1994	55	1,278	7,746	1,312	9,501	1.085
1995	43	1,033	8,779	1,298	10,842	1.238
1996	28	469	9,248	1,164	11,388	1.300
1997	16	725	9,973	1,231	12,280	1.402
1998	12	626	10,599	984	12,896	1.472
1999	17	830	11,429	994	13,721	1.566
2000	7	708	12,137	1,215	14,581	1.665
2001	10	389	12,526	1,215	15,054	1.718
2002	13	715	13,241	1,215	15,923	1.818
2003	18	1,280	14,521	1,215	17,478	1.995
2004	12	1,320	15,841	841	18,588	2.122
2005	10	662	16,463	920	19,161	2.187
2006	11	641	17,104	1,003	19,803	2.261
Low-Income Utility-Tax & State Grant Programs:						
2002	118	6,478	6,478	312	2,024	0.231
2003	15	892	7,370	419	2,398	0.274
2004	0	0	7,370	—	2,398	0.274
2005	40	513	7,883	700	2,757	0.315
2006	9	98	7,981	700	2,826	0.323

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
——Completed Projects —

(Continued)

Year	*Completed Buildings by Year* (4)	*Completed Units by Year*	*Cumulative Units* (4)	*kWh First Year Savings per Unit* (5)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Common-Area Lighting Program:						
1993	32	684	684	439	300	0.034
1994	97	3,609	4,293	793	3,162	0.361
1995	196	4,300	8,593	700	6,172	0.705
1996	153	3,153	11,746	700	8,379	0.957
1997	153	3,956	15,702	700	11,149	1.273
1998	153	4,258	19,960	759	14,380	1.642
1999	51	1,561	21,521	700	15,472	1.766
2000	40	1,364	22,885	700	16,427	1.875
2001	112	2,778	25,663	700	18,372	2.097
2002	79	2,257	27,920	700	19,952	2.278
2003	117	3,221	31,141	433	21,345	2.437
2004	112	3,250	34,391	526	23,054	2.632
2005	102	2,332	36,723	656	24,583	2.806
2006	134	3,003	39,726	286	25,441	2.904
Programs Total:						
1986	47	521	521	1,118	582	0.066
1987	87	1,328	1,849	1,251	2,244	0.256
1988	111	2,016	3,865	1,462	5,191	0.593
1989	92	1,353	5,218	1,192	6,804	0.777
1990	135	1,852	7,070	1,614	9,794	1.118
1991	112	2,036	9,106	1,441	12,728	1.453
1992	123	2,225	11,331	1,356	15,744	1.797
1993	141	2,473	13,804	1,281	18,825	2.149
1994	270	6,883	20,687	1,163	26,833	3.063
1995	389	7,997	28,684	1,134	35,902	4.098
1996	243	4,832	33,516	990	40,685	4.644
1997	240	6,222	39,738	1,016	47,005	5.366
1998	232	5,852	45,590	957	52,605	6.005
1999	140	3,899	49,489	1,176	57,189	6.528
2000	127	3,310	52,799	1,210	61,193	6.985
2001	205	4,567	57,366	1,071	66,085	7.544
2002	292	10,778	68,144	633	72,906	8.323
2003	224	6,416	74,560	800	78,037	8.908
2004	170	5,137	79,697	742	81,846	9.343
2005	241	4,598	84,295	940	86,169	9.837
2006	190	4,459	88,754	630	88,979	10.157
Electricity Savings Since Start of Program:					**867,346**	**MWh**

MULTIFAMILY CONSERVATION PROGRAMS

PROGRAM EXPENDITURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Completed Projects —

Year	*Seattle City Light Admini-stration* (6)	*Office of Housing Admini-stration* (7)	*Total Admini-stration*	*Measure Installation* (8)	*Total Expenditures*
Standard-Income Multifamily Program:					
1986	$79,862	—	$79,862	$260,570	$340,432
1987	150,585	—	150,585	481,472	632,057
1988	198,754	—	198,754	1,080,922	1,279,676
1989	184,340	—	184,340	826,630	1,010,970
1990	171,939	—	171,939	1,216,866	1,388,805
1991	184,826	—	184,826	1,333,858	1,518,684
1992	259,417	—	259,417	1,152,808	1,412,225
1993	700,896	—	700,896	1,082,512	1,783,408
1994	589,742	—	589,742	2,875,003	3,464,745
1995	613,856	—	613,856	3,790,637	4,404,493
1996	402,467	—	402,467	1,667,871	2,070,337
1997	359,967	—	359,967	1,394,083	1,754,050
1998	366,971	—	366,971	1,253,789	1,620,760
1999	345,996	—	345,996	1,286,831	1,632,827
2000	376,319	—	376,319	791,214	1,167,533
2001	367,810	—	367,810	1,144,532	1,512,342
2002	356,965	—	356,965	1,031,242	1,388,206
2003	364,044	—	364,044	621,590	985,634
2004	442,026	—	442,026	422,599	864,625
2005	419,401	—	419,401	1,009,496	1,428,896
2006	395,128	—	395,128	493,054	888,182
Total	$7,331,311	—	$7,331,311	$25,217,579	$32,548,887

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

PROGRAM EXPENDITURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Completed Projects —

(Continued)

Year	*Seattle City Light Admini-stration* (6)	*Office of Housing Admini-stration* (7)	*Total Admini-stration*	*Measure Installation* (8)	*Total Expenditures*
Low-Income Multifamily Program:					
1986	$13,339	$129,655	$142,994	$381,590	$524,584
1987	15,605	246,773	262,378	1,498,248	1,760,626
1988	11,092	325,540	336,632	1,447,048	1,783,680
1989	24,299	346,341	370,640	1,400,368	1,771,008
1990	19,269	293,553	312,822	1,363,621	1,676,443
1991	26,596	313,000	339,596	1,435,579	1,775,175
1992	20,798	337,949	358,747	1,522,625	1,881,372
1993	12,615	753,076	765,691	1,451,928	2,217,619
1994	8,396	780,792	789,188	1,932,391	2,721,579
1995	46,017	531,136	577,153	1,620,534	2,197,687
1996	20,389	269,448	289,837	752,781	1,042,618
1997	11,884	268,689	280,573	601,881	882,454
1998	12,414	267,966	280,380	724,983	1,005,363
1999	11,575	438,830	450,405	910,698	1,361,103
2000	2,012	448,682	450,694	1,082,209	1,532,903
2001	90,433	415,803	506,236	771,607	1,277,843
2002	603	470,016	470,618	655,928	1,126,546
2003	0	481,766	481,766	1,084,459	1,566,225
2004	0	493,856	493,856	676,165	1,170,020
2005	(–1,234)	425,156	423,922	779,080	1,203,001
2006	0	435,785	435,785	634,741	1,070,526
Total	$346,102	$8,473,811	$8,819,913	$22,728,464	$31,548,375
Low-Income Utility-Tax & State Grant Programs:					
2002	$142,618	—	$142,618	$712,665	$855,283
2003	(–324)	—	(–324)	33,717	33,393
2004	0	—	0	0	0
2005	0	—	0	153,900	153,900
2006	(–1,019)	—	(–1,019)	39,300	38,281
Total	$141,275	—	$141,275	$939,582	$1,080,857

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

PROGRAM EXPENDITURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Completed Projects —

(Continued)

Year	*Seattle City Light Admini-stration* (6)	*Office of Housing Admini-stration* (7)	*Total Admini-stration*	*Measure Installation* (8)	*Total Expenditures*
Common-Area Lighting Program:					
1993	$107,227	—	$107,227	$563,347	$670,574
1994	224,273	—	224,273	717,377	941,650
1995	212,510	—	212,510	835,831	1,048,341
1996	286,733	—	286,733	495,378	782,111
1997	310,183	—	310,183	579,398	889,581
1998	263,583	—	263,583	514,809	778,392
1999	267,867	—	267,867	252,011	519,878
2000	223,706	—	223,706	258,517	482,223
2001	188,848	—	188,848	209,848	398,696
2002	220,545	—	220,545	294,882	515,427
2003	350,997	—	350,997	239,416	590,413
2004	242,036	—	242,036	228,209	470,245
2005	286,626	—	286,626	221,832	508,457
2006	230,291	—	230,291	170,375	400,666
Total	$3,415,425	—	$3,415,425	$5,581,229	$8,996,654
Programs Total:					
1986	$93,201	$129,655	$222,856	$642,160	$865,016
1987	166,190	246,773	412,963	1,979,720	2,392,683
1988	209,846	325,540	535,386	2,527,970	3,063,356
1989	208,639	346,341	554,980	2,226,998	2,781,978
1990	191,208	293,553	484,761	2,580,487	3,065,248
1991	211,422	313,000	524,422	2,769,437	3,293,859
1992	280,215	337,949	618,164	2,675,433	3,293,597
1993	820,738	753,076	1,573,814	3,097,787	4,671,601
1994	822,411	780,792	1,603,203	5,524,771	7,127,974
1995	872,383	531,136	1,403,519	6,247,002	7,650,521
1996	709,589	269,448	979,037	2,916,029	3,895,066
1997	682,034	268,689	950,723	2,575,362	3,526,085
1998	642,968	267,966	910,934	2,493,581	3,404,515
1999	625,438	438,830	1,064,268	2,449,540	3,513,808
2000	602,037	448,682	1,050,719	2,131,940	3,182,659
2001	647,091	415,803	1,062,894	2,125,987	3,188,881
2002	720,730	470,016	1,190,746	2,694,717	3,885,463
2003	714,717	481,766	1,196,483	1,979,181	3,175,665
2004	684,062	493,856	1,177,918	1,326,973	2,504,890
2005	704,793	425,156	1,129,949	2,164,308	3,294,254
2006	324,400	435,785	1,060,185	1,337,470	2,397,655
Total	**$11,234,113**	**$8,473,811**	**$19,707,924**	**$54,466,854**	**$74,174,773**

MULTIFAMILY CONSERVATION PROGRAMS

FINANCIAL EFFICIENCY MEASURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS
– Per Completed Unit – (9)

Year	*Average Total Administration*	*Average Installation*	*Average Total Expenditure*	*Administration as % of Total Expenditures*
Standard-Income Multifamily Program:				
1986	$311	$1,014	$1,325	23.5%
1987	377	1,207	1,584	23.8
1988	177	963	1,141	15.5
1989	399	1,789	2,188	18.2
1990	169	1,193	1,362	12.4
1991	148	1,071	1,219	12.2
1992	215	957	1,173	18.4
1993	744	1,149	1,893	39.3
1994	295	1,440	1,736	17.0
1995	230	1,423	1,653	13.9
1996	333	1,378	1,711	19.4
1997	234	905	1,138	20.5
1998	379	1,295	1,674	22.6
1999	229	853	1,083	21.2
2000	304	639	943	32.2
2001	263	818	1,080	24.3
2002	269	777	1,045	25.7
2003	356	608	963	36.9
2004	780	745	1,525	51.1
2005	371	893	1,263	29.4
2006	485	605	1,090	44.5
Avg. 1986-2006	$300	$1,032	$1,332	22.5%

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

FINANCIAL EFFICIENCY MEASURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS – Per Completed Unit – (9)

(Continued)

Year	*Average Total Administration*	*Average Installation*	*Average Total Expenditure*	*Administration as % of Total Expenditures*
Low-Income Multifamily Program:				
1986	$542	$1,445	$1,987	27.3%
1987	282	1,613	1,895	14.9
1988	377	1,619	1,995	18.9
1989	416	1,572	1,988	20.9
1990	376	1,639	2,015	18.7
1991	430	1,817	2,247	19.1
1992	351	1,491	1,843	19.1
1993 (9)	904	1,714	2,618	34.5
1994	618	1,512	2,130	29.0
1995	559	1,569	2,127	26.3
1996	618	1,605	2,223	27.8
1997	387	830	1,217	31.8
1998	448	1,158	1,606	27.9
1999	543	1,097	1,640	33.1
2000	637	1,529	2,165	29.4
2001	1,301	1,984	3,285	39.6
2002	658	917	1,576	41.8
2003	376	847	1,224	30.8
2004	374	512	886	42.2
2005	682	1,253	1,934	35.2
2006	680	990	1,670	40.7
Avg. 1986-2006	$516	$1,329	$1,845	28.0%
Low-Income Utility Tax Program:				
2002	$22	$110	$132	16.7%
2003	0	38	37	(–1.0)
2004	0	0	0	—
2005	0	300	300	—
2006	(–10)	401	391	(–2.7)
Avg. 2002-2006	$18	$118	$135	13.1%

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

FINANCIAL EFFICIENCY MEASURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS
– Per Completed Unit – (9)

(Continued)

Year	*Average Total Administration*	*Average Installation*	*Average Total Expenditure*	*Admin. as % of Total Expenditures*
Common-Area Lighting Program:				
1993	$157	$824	$980	16.0%
1994	62	199	261	23.8
1995	49	194	244	20.3
1996	91	157	248	36.7
1997	78	146	225	34.9
1998	62	121	183	33.9
1999	172	161	333	51.5
2000	164	190	354	46.4
2001	68	76	144	47.4
2002	98	131	228	42.8
2003	107	73	181	59.4
2004	74	70	144	51.5
2005	123	95	218	56.4
2006	77	57	133	57.5
Avg. 1993-2006	$86	$140	$225	38.0%
Programs Total:				
1986	$428	$1,233	$1,660	25.8%
1987	311	1,491	1,802	17.3
1988	266	1,254	1,520	17.5
1989	410	1,646	2,056	19.9
1990	262	1,393	1,655	15.8
1991	258	1,360	1,618	15.9
1992	278	1,202	1,480	18.8
1993	636	1,253	1,889	33.7
1994	233	803	1,036	22.5
1995	176	781	957	18.3
1996	203	603	806	25.1
1997	153	414	567	27.0
1998	156	426	582	26.8
1999	273	628	901	30.3
2000	317	644	962	33.0
2001	233	466	699	33.3
2002	110	250	360	30.6
2003	186	308	495	37.7
2004	229	258	488	47.0
2005	246	471	716	34.3
2006	233	293	526	44.2
Avg. 1986-2006	**$220**	**$609**	**$829**	**26.6%**

MULTIFAMILY CONSERVATION PROGRAMS

BPA FUNDING FOR THE MULTIFAMILY CONSERVATION PROGRAMS (10)

Year	*Administration*	*Weatherization*	*Total Funding*
Standard-Income Multifamily Program:			
1986	$12,040	$136,868	$148,908
1987	0	0	0
1988	0	0	0
1989	24,317	0	24,317
1990	16,416	0	16,416
1991	49,559	0	49,559
1992	48,242	0	48,242
1993	0	0	0
1994	0	0	0
1995	220,080	1,532,242	1,752,322
1996	0	661,055	661,055
1997	0	491,374	491,375
1998	0	35,451	35,451
1999-2006	0	0	0
Total	$370,654	$2,856,990	$3,227,645
Low-Income Multifamily Program:			
1986	$5,095	$54,796	$59,891
1987	5,745	45,789	51,534
1988	6,280	51,512	57,792
1989	58,672	258,307	316,979
1990	67,734	242,701	310,435
1991	68,955	351,665	420,620
1992	81,309	405,178	486,487
1993	107,272	619,741	727,013
1994	10,285	1,460,455	1,470,740
1995	13,547	298,492	312,039
1996	0	168,822	168,822
1997-2006	0	0	0
Total	$424,894	$3,957,458	$4,382,352
Common-Area Lighting Program:			
1993	$0	$0	$0
1994	0	0	0
1995	91,600	529,497	621,097
1996	0	269,221	269,221
1997	0	340,918	340,918
1998-2006	0	0	0
Total	$91,600	$1,139,636	$1,231,236

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

BPA FUNDING FOR THE MULTIFAMILY CONSERVATION PROGRAMS (10)

(Continued)

Year	*Administration*	*Weatherization*	*Total Funding*
Programs Total:			
1986	$17,135	$191,664	$208,799
1987	5,745	45,789	51,534
1988	6,280	51,512	57,792
1989	82,989	258,307	341,296
1990	84,150	242,701	326,851
1991	118,514	351,665	470,179
1992	129,551	405,178	534,729
1993	107,272	619,741	727,013
1994	10,285	1,460,455	1,470,740
1995	325,227	2,360,231	2,685,458
1996	0	1,099,099	1,099,099
1997	0	832,293	832,293
1998	0	35,451	35,451
1999-2006	0	0	0
Total	**$887,148**	**$7,954,085**	**$8,841,234**

Notes

1. Eligible population figures are from City Light's 1992 load forecast. Of the 47,461 units in the standard-income market pool for whole-building measures, 34,805 were estimated to be located in apartment buildings and 12,656 were in multi-unit condominiums. Of the 52,646 units in the market pool for common-area lighting measures only, 32,091 were located in electric-space heat buildings constructed since 1980 and 20,555 were in older buildings and multi-use condominiums.

2. These figures include the number of buildings where weatherization work was contracted during the year. The source was Multifamily Conservation Program records, Energy Management Services/Conservation Resources Division, Contracts Unit. The program contracted to serve a total of 89,816 residential units during 1986 through 2006.

3. The whole-building energy savings by year (MWh) totals reflect savings for the current year participants plus savings accrued by prior participants within each category of building type. Energy savings estimates are derived from the study report, *Multifamily Retrofit Conservation Programs: Longitudinal Impact Evaluation* (April 1999). Following are the annual total kWh per-unit savings estimates used.

MULTIFAMILY CONSERVATION PROGRAMS

	Tenant Meter Savings kWh per Unit		House-Meter Savings kWh per Unit		Total Building Impact kWh per Unit	
Year	Std-Inc	Low-Inc	Std-Inc	Low-Inc	Std-Inc	Low-Inc
1986	989	1,711	195	136	1,213	1,025
1987	1,186	1,465	416	379	1,628	1,089
1988	837	1,335	485	303	1,322	1,638
1989	1,082	628	452	387	1,534	1,015
1990	1,356	829	581	390	1,937	1,219
1991	1,338	898	358	140	1,696	1,038
1992	1,249	896	184	369	1,433	1,265
1993	1,291	991	550	347	1,840	1,338
1994	1,265	965	474	347	1,738	1,312
1995	1,251	951	520	347	1,771	1,298
1996	1,117	817	561	347	1,678	1,164
1997	1,160	860	565	371	1,725	1,231
1998	1,153	853	658	432	1,811	1,285
1999-2006	1,153	853	615	362	1,768	1,215

Energy savings from tenant spaces appear to be lower from applications in low-income buildings than in standard-income buildings. This basically reflects on inherent heat-loss characteristics of typical building structures in the two programs, and the mix of measures installed in the average retrofit job. Regarding windows, average heat-loss coefficients of replacement measures have shifted from U=0.72 in 1986-1989 to U=0.58 in 1990, U=0.46 in 1991, U=0.40 in 1992, and most currently U=0.35 in 1999. Overall, energy savings have not increased commensurately, due in part to declines in application of insulation materials. Some low-income units received only lighting measures (105 units in 1993), or no lighting measures (490 units in 1998, 582 units in 1999), so were estimated separately.

Energy savings for participants receiving only common-area lighting measures are based upon estimates made by Community Conservation staff using pre- and post-wattage and engineering algorithms. These projections were then reduced by 38%, based on the findings of a pilot evaluation which showed that actual savings were somewhat lower than projections in a sample of eleven buildings (Evaluation of Multifamily Conservation Lighting in the Energy Smart Design Program, February 1993). One building contracted in 1993 and another in 1998 were projected to produce unusually high savings per unit, and so were estimated separately. The estimates reported here will be revised in a future edition of the *Energy Conservation Accomplishments Report*, when an future evaluation of common-area lighting savings has been completed.

4. These figures include the number of buildings where weatherization work was completed (and contractors paid) during the year. The source was Multifamily Conservation Program records, Energy Management Services/Conservation Resources Division, Community Conservation Section and Contracts Unit. The program served a total of 88,754 units completed during 1986 through 2006. The average number of units per building during these twenty-one years was 25 for low-income whole-building participants, 17 for standard-income whole-building participants, 26 for common-area lighting-only participants, and 44 for utility-tax benefit and state grant program participants.

From 1986 through 2001, the Low-Income Multifamily Program weatherized 2,959 units of public housing in 49 buildings averaging 60 units in size. By year, these included the following King County Housing Authority (1988) and Seattle Housing Authority (1986-2001) buildings.

MULTIFAMILY CONSERVATION PROGRAMS

	Public Housing Authority	
Year	Buildings	Units
1986	12	94
1987	0	0
1988	2	140
1989	0	0
1990	2	132
1991	8	41
1992	4	234
1993	2	125
1994	3	220
1995	6	608
1996	1	153
1997	2	148
1998	2	246
1999	2	134
2000	2	578
2001	1	106
2002-2006	0	0

During 1999 the Common-Area Lighting program also served 834 units of public housing in 18 buildings operated by the Seattle Housing Authority, averaging 46 units in size.

During 2001-2006 the Low-Income Multifamily Program also installed high efficiency lighting or appliances in 1,077 units of public housing in 8 projects operated by the Seattle Housing Authority and King County Housing Authority.

During 2002 the Low-Income Utility Tax program installed efficient lighting and space-heat thermostats in 2,096 units of public housing in 41 buildings operated by the Seattle Housing Authority and King County Housing Authority, as well as 4,996 units in 85 buildings operated by private non-profit low-income housing providers.

Utility Tax Funds for Low-Income Retrofits. The utility was particularly interested in assisting low-income customers as utility rates escalated up and down the West Coast during 2001. City Light held low-income rates down to prior levels, at half of standard residential rates, while other utility rates increased. What is more, Council Ordinance 120322, passed in April 2001, allocated $1.1 million of utility B&O tax funds to additional energy conservation efforts targeted towards low-income housing providers and the facilities they operate. Of the $1.1 million total, $1,060,000 was targeted towards purchase and installation of energy efficiency measures in low-income housing. Through the end of 2003, $888,676 was spent on these activities.

City Light and the Office of Housing (OH) completed this work during 2002-2003. OH completed common-area lighting retrofits in the buildings of non-profit housing providers, members of the private-sector Housing Development Consortium of Seattle–King County. City Light worked directly with King County Housing Authority (KCHA) and Seattle Housing Authority (SHA) to have common area lighting replaced in 11 and 26 of their buildings respectively. In addition to the lighting retrofits, 4,789 electric baseboard thermostats were replaced in buildings owned by six non-profit housing providers and SHA. Altogether, this effort involved over 133 buildings (7,370 units) owned or managed by 16 non-profit housing providers in Seattle City Light's service territory, plus the two housing authorities. Energy savings of 2,398 MWh per year are expected. During 2001 City Light also provided some 32,000 compact fluorescent bulbs to low-income housing providers for distribution to their residents.

MULTIFAMILY CONSERVATION PROGRAMS

The conservation funded by utility tax moneys are expected to result in energy and cost savings for the low-income housing providers being served and their residents. In addition, it has also resulted in increased collaborative opportunities between the housing providers and City departments (including Seattle Public Utilities, which joined City Light and OH in promoting water conservation efforts). The survey process initiated to plan and target use of the utility tax funds has also enabled OH to identify a large pool of additional buildings now eligible for service through the regular low-income multifamily conservation program under the more liberal income guidelines adopted in 2001 by the City Council.

State grant money, paid via the Seattle Foundation from the Washington Consumers Energy Fund, purchased 611 Energy Star refrigerators for installation in low-income qualified multifamily units. Of these, 513 were installed during 2005 (and 98 during 2006), at a rebate of $300 each.

5. Energy savings were calculated for completed buildings as described above in Note 3.

First year energy savings from new participants completing work in each year were: 582 MWh (1986); 1,661 MWh (1987); 2,948 MWh (1988); 1,613 MWh (1989); 2,990 MWh (1990); 2,933 MWh (1991); 3,017 MWh (1992); 3,081 MWh (1993); 8,008 MWh (1994); 9,069 MWh (1995); 4,783 MWh (1996); 6,320 MWh (1997); 5,600 MWh (1998); 4,584 MWh (1999); 4,004 MWh (2000); 4,892 MWh (2001); 6,820 MWh (2002); 5,131 MWh (2003); 3,809 MWh (2004); 4,323 MWh (2005); and 2,809 MWh (2006).

6. Program expenditures for City Light Energy Management Services/Conservation Resources Division administration include the following: salaries, wages, and labor-related costs for field staff and administrative support; materials and supplies, office supplies, printing; paid media space; travel, postage, publications; data processing; and contract unit services.

Labor costs associated with program audits and inspections are included. The source of these data from 1986 through 1990 is Cost Ledger Reports from the City Light Finance Division for Work Order Nos. 70595, and 70522. These figures do not reflect BPA funding. Cost data for 1991 through 2005 are from the Seattle Financial Management System and Summit System for Activity/Work Order Nos. 70501, 70511, 70522, 70534, 70544, 70592, 70593, and 70595.

Administrative costs for 1993-2006 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 *MFC* Programs was $267,982, or 33% of total Seattle City Light programmatic administrative expenditures; in 1994 it was $264,825 (32%); in 1995 is was $265,727 (30%).

By program component, the A&G charges in 1994 were: Standard-Income Program, $188,022 (32%); Low-Income Program, $3,031 (36% of Seattle City Light administration); and Common-Area Lighting Program, $73,772 (33%). In 1995 the A&G charges were: Standard-Income Program, $186,054 (30%); Low-Income Program, $7,249 (16% of Seattle City Light administration); and Common-Area Lighting Program, $72,423 (34%). The size of this percentage reflects the proportion of administrative costs that are labor intensive.

7. These administrative direct cost data came from DHHS monthly invoices for labor, installation costs, and other program expenses. The indirect administration charges from 1986-1992 were subtracted from the total to more closely match reported City Light costs (OMB recommendation, May 1988).

MULTIFAMILY CONSERVATION PROGRAMS

Beginning in 1993, the indirect charges are once again reported in this table, based on changes in Seattle City Light accounting for A&G service overhead charges in other programs. This change more closely matches low-income *MFC* costs with those of buildings in the standard-income *MFC*.

The indirect charges were $47,460 in 1986; $132,595 in 1987; $125,734 in 1988; $108,296 in 1989; $130,254 in 1990; $213,433 in 1991; $119,754 in 1992; $118,514 in 1993; $124,278 in 1994; $152,658 in 1995; $66,748 in 1996; $63,519 in 1997; $63,480 in 1998; $74,303 in 1999; $76,909 in 2000; $0 in 2001-2003; $81,649 in 2004; $74,107 in 2005; and $73,687 in 2006. For a more detailed explanation of DHHS/OH cost accounting, see Note 5 to the *LIEP* entry in this Report.

8. Program expenditures for loans and grants from 1986 to 1990 were compiled from year-end Cost Ledger Reports from the City Light Finance Division for Work Order No. 70595-05 (Budget Item 36). Cost data for 1991 and 1992 are from the SFMS and from records of the Energy Management Services/Conservation Resources Division, Community Conservation Section (April 1994), as well as from the Contracts Unit (June 1994). Cost data for 1993-1996 are from the Contracts Unit. These figures reflect the total cost of measure installation (including costs incurred by the customer in excess of program allowances).

In 1986-1997, since the customer paid these excess monies to the utility, which then paid all contractor invoices in full, actual customer loans were often lower. In 1998-2006, customers paid excess monies directly to the contractor. Presented below are the annual excess payments in nominal dollars made by customers in each year as contracted from 1986 through 2006 for the Standard-Income program and 1993-2005 for the Common-Area Lighting program.

	Standard Income Program	
Year	Annual Excess Pmts	Cumulative Excess Pmts
1986	$ 20,121	$ 20,121
1987	31,486	51,608
1988	161,143	212,751
1989	161,177	373,928
1990	134,179	508,107
1991	174,806	682,913
1992	119,784	802,697
1993	313,655	1,116,352
1994	299,006	1,415,358
1995	251,938	1,667,296
1996	272,143	1,939,439
1997	388,824	2,328,263
1998	882,554	3,210,817
1999	890,114	4,100,931
2000	866,734	4,967,665
2001	1,166,818	6,134,483
2002	1,438,815	7,573,298
2003	908,673	8,481,971
2004	707,133	9,189,104
2005	1,129,497	10,318,601
2006	824,170	11,142,771

MULTIFAMILY CONSERVATION PROGRAMS

Excess dollars paid by customers to contractors, reported here by project authorization year, are documented in program tracking databases: MFP_History (Rbase/Access 1997-1999), CAL_History (Rbase/Access 1996-1999), and CTS/EMTS (Oracle 2000-2004).

	Common-Area Lighting Program	
Year	Annual Excess Pmts	Cumulative Excess Pmts
1993	$ 11,191	$ 11,191
1994	19,006	30,197
1995	9,789	39,986
1996	272,695	312,681
1997	156,418	469,099
1998	203,869	672,968
1999	112,196	785,164
2000	54,367	839,531
2001	163,793	1,003,324
2002	100,868	1,104,192
2003	96,565	1,200,757
2004	95,531	1,296,288
2005	45,675	1,341,963
2006	65,907	1,407,870

9. Note that administrative costs generally would vary with projects contracted (since most labor occurs up to this stage), while measure costs would vary with completions (when payment for measures occurs); but this table indexes both types of costs to completions. Thus the 1993 financial efficiency measures are affected by the ramp-up in project starts.

   In 1993 two buildings (38 units) retrofitted special wood windows required for historic preservation purposes. Changes in NFRC requirements also drove costs up and the financial efficiency index down for measures.

   There is a discontinuity in this table due to the inclusion in 1993 and following years of indirect administrative costs that were formerly excluded (see Note 7).

10. These data are based on City Light invoices submitted to and paid by BPA. City Light participated in the regional Energy Buy Back Program from 1986-1991, and began to participate in the BPA Weatherwise program in October 1991. No administrative charges were made to the BPA for radon monitoring, water-heater tank wraps, or training.

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

Description

The Warm Home Program (*Warm Home*) replaced the Home Energy Loan Program in 1994 (see SECTION IV: DISCONTINUED RESIDENTIAL PROGRAMS). *Warm Home* provided grants and loans to electrically heated households for weatherization measures. The program also worked with landlords to serve rental as well as owner-occupied homes. Insulation was installed only if the existing insulation was below threshold levels: attics, R-11; floors above crawl space or garage, R-9; heating ducts, R-3. In walls, full insulation was mandatory where structurally feasible if there was no existing insulation; water pipe insulation was mandatory as well, where crawl spaces were insulated. Insulation was provided at no cost to the customer in 1994-1996.

If no insulation was needed, during 1994-1995 the *Warm Home* customer was still eligible for efficient window measures. The customer received a grant from City Light of $3 per square foot on insulated windows (reimbursed by the BPA). The balance could be paid in cash or taken out in a loan from City Light, limited to $12 per square foot; the customer paid any amount over $15/square foot directly to the contractor. The loan could be paid back over a five-year period at the prevailing interest rate.

Warm Home was partially funded by the Bonneville Power Administration (BPA) through its regional Weatherwise program. Funding provided by the BPA via the Third Party Financing Agreement began in June 1994 and was discontinued at the end of 1996. The BPA funded each project at the calculated measure cost, including a program administration allowance, up to a maximum of $900 per residential unit.

In 1994 participating private contractors marketed the program to individual homeowners through Seattle City Light's service area, then installed the measures. Seattle City Light managed and paid the contractors. *Warm Home* was redesigned in 1996 to operate without funding support from the BPA. Window replacements were no longer offered, and owners became responsible for about 30% of insulation costs. Pre-existing insulation levels were also tightened up to increase program cost-effectiveness, being installed only if the existing insulation was below threshold levels of R-8 for attics and R-3 for floors above crawl spaces. Floors above unheated garages were no longer eligible for free insulation beginning in 1996.

Program marketing efforts were targeted to specific Seattle neighborhoods only in 1996-1998. Prior to bidding by weatherization contractors, City Light staff provided comprehensive multi-

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

resource conservation *Green Audits* to all applicants; in 1996 half of these went on to receive weatherization measures.

In 1997-2005 the *Green Audit* service continued to be offered to non-participants in the weatherization program. *Warm Home* was replaced by *Neighborhood Power Weatherization (NPW)* in July 1997, with small-scale efforts through successive Power Projects in various Seattle neighborhoods.

The first Neighborhood Power project was conducted as a pilot during 1995 in Seattle's Fremont (near north-central) district. During 1996-1997 a second project was offered in Georgetown / Beacon Hill / Maple Hill (south central). Seattle areas chosen for subsequent Neighborhood Power Projects were Lake City (northeast Seattle) in 1998, Rainier Beach / Southeast Seattle in 1999, Delridge / White Center / West Seattle (southwest Seattle) in 2000; and the Central Area (east of downtown) in 2001. The focus in 2002 turned to the Greenwood / Phinney Ridge neighborhood (northwest Seattle), in 2003 to the adjacent neighborhood of Ballard (also northwest Seattle), in 2004-2005 to the North Rainier / International District (southeast of downtown), and during 2005 in the University District surrounding the University of Washington.

In 2004 the schedule for Neighborhood Power projects was changed from a calendar year to a July-to-June time frame, so that each neighborhood receives services over a continuous heating and lighting season. City Light stopped offering weatherization measure funding through this program in 2003, but continues with *Green Audits* and neighborhood events.

The first Neighborhood Power project was conducted as a pilot during 1995 in Seattle's Fremont (near north-central) district. During 1996-1997 a second project was offered in Georgetown / Beacon Hill / Maple Hill (south central). Seattle areas chosen for subsequent Neighborhood Power Projects were Lake City (northeast Seattle) in 1998, Rainier Beach / Southeast Seattle in 1999, Delridge / White Center / West Seattle (southwest Seattle) in 2000; and the Central Area (east of downtown) in 2001. The focus in 2002 turned to the Greenwood / Phinney Ridge neighborhood (northwest Seattle), in 2003 to the adjacent neighborhood of Ballard (also northwest Seattle), in 2004-2005 to the North Rainier / International District (southeast of downtown), during 2005 to the University District surrounding the University of Washington, and in 2006 to West Seattle/Alki.

Since 1999, *NPW* efforts have also included a Porchlight Brigade in served neighborhoods, which supplied compact fluorescent (CF) light bulbs to volunteers for distribution to their neighbors. In 2001 the neighborhood programs were supplemented by a special one-time postal distribution of Conservation Kits, which contained two CF light-bulbs and an efficient-flow bathroom faucet aerator. This distribution was mounted in cooperation with Seattle Public

NEIGHBORHOOD POWER PROGRAMS:
LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

Utilities. After a solicitation of customer interest, Kits were delivered to 178,500 households in the City Light service area (57% of customers participated).

In 2005 another round of Conservation Kits were distributed by mail and by bulk delivery to customers who did not participate in the 2001 program. Each 2005 Kit contained one CF light-bulb and a bathroom faucet aerator. After a solicitation of customer interest, Kits were delivered to 48,659 households (35% of households contacted).

In 2001 CF bulbs were also delivered through Block Watch captains during annual Night Out neighborhood events, at a Mariner's baseball game, and to government and non-profit low-income housing providers. In all during that year, 218,281 participating customers installed 338,337 CF bulbs distributed by Seattle City Light.

In a special mailing during 2004, CF bulbs were sent to participants in the Internet on-line Home Resource Profile service. During 1998-2006, CF bulbs were also distributed via *Green Audit* participants to neighbors, by the Porchlight Brigade and by Block Watch captains, as well as at neighborhood events and festivals.

Eligible Population

The *Neighborhood Power* programs serve single-family and multiplex (2- to 4-unit) electrically heated buildings. Although there is no income eligibility requirement, the program tends to serve residents of moderately low income. To receive weatherization measures, the home heat source must be 100% electric, installed prior to 1988, with no operable secondary heat source. During 1994-1995, some low-income customers also participated in *Warm Home* to receive financial assistance for wall insulation and insulated window glass. Beginning in 1997, only buildings located in specific areas of Seattle targeted by the Neighborhood Power Project are eligible for *Green Audit* and *Weatherization* services. The one-time 2001 CF bulb offer was available to all residential customers in the utility service area.

Lifetime of Conservation Measures Installed:

The lifetime of measures ranges from 5 years for Porchlight Brigade compact fluorescent (CF) light-bulbs, 7 years for bulbs distributed in the 2001 and 2005 Conservation Kits, and 10 years for *Green Audit* measures (water heater thermostat setbacks, efficient showerheads, efficient faucet aerators, plus CFL screw-in lamps), to 30 years for *Weatherization* measures. The weighted average lifetime has ranged from 30 years (1994-1995) to 6 years (2002). (1)

NEIGHBORHOOD POWER PROGRAMS:
LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

Electricity Savings

The average single-family building receiving a weatherization grant and financing from *Warm Home* in 1994-1995 saved about 2,664 kilowatt-hours per year. These savings represent 14% of the typical electrically heated single-family home's energy use (19,580 kWh in 1990). Beginning in 1996, weatherization savings were reduced to 1,839 kWh per year based on the discontinuation of window retrofits. These savings represent 10% of the typical home's energy use (18,363 kWh in 2000). In 1996 only, single-family participants also received water heater setbacks saving an additional 605 kWh per average unit.

Multiplex buildings in the 1994-1995 program save 2,044 kWh per unit annually. These savings represent 16% of the typical electrically heated multiplex unit's energy use (a weighted average across units of 12,493 kWh in 1990). Beginning in 1996, savings were reduced to 1,353 kWh per year based on the discontinuation of window retrofits. These savings represent 11% of the typical home's energy use (12,374 kWh in 2000). In 1996 only, multiplex participants also received water heater setbacks saving an additional 481 kWh per average unit.

In 1996 through 2006, *Neighborhood Power* programs also provided *Green Audits* to customers who did not receive weatherization measures. The typical *Green Audit* participant saved 623 kWh per unit (in 1996-1998) from a screw-in compact fluorescent light (CFL) bulb plus water-related measures including efficient-flow showerheads, kitchen and bath faucet aerators, and a water heater thermostat set-back. With fewer water heater setbacks and showerheads being installed, the average *Green Audit* savings in 2003 are estimated at 323 kWh per unit. Porchlight Brigade, Block Watch, and community CFL distributions during 1998-2000 are reported as "CFLs"; the category expanded to "CFLs & Kits" to incorporate the citywide Conservation Kit distributions in 2001 and 2005. Porchlight CFL installations are expected to save 82.5 kWh per bulb (including a 75% installation rate), while Kit CFLs are estimated to save 54.5 kWh per bulb annually.

In 2006 the energy savings from cumulative (1994-2006) *Neighborhood Power* <u>completed</u> projects were 33,108 megawatt-hours (MWh). The load reduction in 2006 due to these programs was 3.779 average megawatts (aMW).

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

ELECTRICITY SAVINGS FOR THE NEIGHBORHOOD POWER LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME PROGRAMS — Contracted Projects —

Year	Building Type (2)	Buildings by Year (3)	Units by Year	kWh Savings per Bldg (4)	MWh Savings in Year	Avg. MW Load Reduction in Year
1994	Single Family	526	526	2,664	1,401	0.160
	Multiplex	73	193	5,404	394	0.045
	Annual Total	599	719	—	1,796	0.205
1995	Single Family	838	838	2,664	3,634	0.415
	Multiplex	125	340	5,560	1,089	0.124
	Annual Total	963	1,178	—	4,723	0.539
1996	Single Family	171	171	2,444	4,052	0.463
	Multiplex	23	59	4,704	1,198	0.137
	Green Audits	175	228	1,193	209	0.024
	Annual Total	369	458	—	5,458	0.623
1997	Single Family	32	32	1,839	4,111	0.469
	Multiplex	11	32	3,936	1,241	0.142
	Green Audits	107	128	935	309	0.035
	Annual Total	150	192	—	5,660	0.646
1998	Single Family	10	10	1,839	4,129	0.471
	Multiplex	0	0	0	1,241	0.142
	Green Audits	143	148	267	347	0.040
	CFLs	1,375	1,375	83	113	0.013
	Annual Total	1,528	1,533	—	5,830	0.666
1999	Single Family	12	12	1,839	4,151	0.474
	Multiplex	1	2	2,706	1,244	0.142
	Green Audits	138	138	587	428	0.049
	CFLs	1,416	1,416	83	230	0.026
	Annual Total	1,567	1,568	—	6,053	0.691
2000	Single Family	16	16	1,839	4,180	0.477
	Multiplex	1	4	5,412	1,249	0.143
	Green Audits	152	152	442	495	0.057
	CFLs	4,178	4,178	83	575	0.066
	Annual Total	3,447	3,450	—	6,500	0.742
2001	Single Family	16	16	1,839	4,210	0.481
	Multiplex	0	0	0	1,249	0.143
	Green Audits	104	104	266	523	0.060
	CFLs & Kits	230,087	230,087	95	22,399	2.557
	Annual Total	230,207	230,207	—	28,380	3.240

(Cont'd.)

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

ELECTRICITY SAVINGS FOR THE NEIGHBORHOOD POWER LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME PROGRAMS — Contracted Projects —

(Continued)

Year	*Building Type* (2)	*Buildings by Year* (3)	*Units by Year*	*kWh Savings per Bldg* (4)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
2002	Single Family	3	3	1,839	4,215	0.481
	Multiplex	2	8	5,412	1,260	0.144
	Green Audits	14	14	540	530	0.061
	CFLs & Kits	7,068	7,068	58	22,805	2.603
	Annual Total	7,087	7,093	—	28,811	3.289
2003	Single Family	0	0	0	4,215	0.481
	Multiplex	0	0	0	1,260	0.144
	Green Audits	188	188	323	591	0.067
	CFLs & Kits	15,848	15,848	50	23,482	2.681
	Annual Total	16,036	16,036	—	29,548	3.373
2004	Single Family	0	0	0	4,215	0.481
	Multiplex	0	0	0	1,260	0.144
	Green Audits	183	183	906	757	0.086
	CFLs & Kits	9,932	9,932	52	23,885	2.727
	Annual Total	10,115	10,115	—	30,117	3.438
2005	Single Family	0	0	0	4,215	0.481
	Multiplex	0	0	0	1,260	0.144
	Green Audits	133	133	316	799	0.091
	CFLs & Kits	64,263	64,263	57	27,183	3.103
	Annual Total	64,396	64,396	—	33,457	3.819
2006	Single Family	0	0	0	4,215	0.481
	Multiplex	0	0	0	1,260	0.144
	Green Audits	163	163	802	930	0.106
	CFLs & Kits	5,784	5,784	41	27,419	3.130
	Annual Total	5,947	5,947	—	33,824	3.861
Program Totals 1994-2006						
	Single Family	1,624	1,624	—	50,943	—
	Multiplex	236	638	—	15,205	—
	Green Audits	1,500	1,579	—	5,918	—
	CFLs & Kits	339,951	339,951	—	148,091	—
	All Buildings	343,311	343,792	—	220,157	—
Potential Electricity Savings Since Start of Program:					**220,157**	**MWh**

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

ELECTRICITY SAVINGS FOR THE NEIGHBORHOOD POWER LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME PROGRAMS — Completed Projects —

Year	Building Type (2)	Buildings by Year (3)	Units by Year	kWh Savings per Bldg (4)	MWh Savings in Year	Avg. MW Load Reduction in Year
1994	Single Family	210	210	2,664	559	0.064
	Multiplex	39	102	5,346	208	0.024
	Annual Total	249	312	—	768	0.088
1995	Single Family	767	767	2,664	2,603	0.297
	Multiplex	86	231	5,490	681	0.078
	Annual Total	853	998	—	3,283	0.375
1996	Single Family	457	457	2,065	3,547	0.405
	Multiplex	86	232	3,980	1,023	0.117
	Green Audits	175	228	1,193	209	0.024
	Annual Total	718	917	—	4,778	0.545
1997	Single Family	105	105	1,839	3,740	0.427
	Multiplex	20	56	3,788	1,099	0.125
	Green Audits	107	128	935	309	0.035
	Annual Total	232	289	—	5,147	0.588
1998	Single Family	6	6	1,839	3,751	0.428
	Multiplex	0	0	0	1,099	0.125
	Green Audits	143	148	267	347	0.040
	CFLs	1,375	1,375	83	113	0.013
	Annual Total	1,524	1,529	—	5,310	0.606
1999	Single Family	14	14	1,839	3,777	0.431
	Multiplex	1	2	2,706	1,101	0.126
	Green Audits	138	138	587	428	0.049
	CFLs	1,416	1,416	83	230	0.028
	Annual Total	1,569	1,570	—	5,536	0.632
2000	Single Family	12	12	1,839	3,799	0.434
	Multiplex	0	0	0	1,101	0.126
	Green Audits	152	152	442	495	0.057
	CFLs	4,178	4,178	83	575	0.066
	Annual Total	4,342	4,342	—	5,970	0.682
2001	Single Family	23	23	1,839	3,841	0.438
	Multiplex	1	4	5,412	1,107	0.126
	Green Audits	104	104	266	523	0.060
	CFLs & Kits	230,087	230,087	95	22,399	2.557
	Annual Total	230,215	230,218	—	27,869	3.181

(Cont'd.)

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

ELECTRICITY SAVINGS FOR THE NEIGHBORHOOD POWER LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME PROGRAMS — Completed Projects —

(Continued)

Year	*Building Type* (2)	*Buildings by Year* (3)	*Units by Year*	*kWh Savings per Bldg* (4)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
2002	Single Family	5	5	1,839	3,850	0.440
	Multiplex	1	4	5,412	1,112	0.127
	Green Audits	14	14	540	530	0.061
	CFLs & Kits	7,068	7,068	58	22,805	2.603
	Annual Total	7,088	7,091	—	28,298	3.230
2003	Single Family	0	0	0	3,850	0.440
	Multiplex	1	4	5,412	1,118	0.128
	Green Audits	188	188	323	591	0.067
	CFLs & Kits	15,848	15,848	50	23,482	2.681
	Annual Total	16,037	16,040	—	29,041	3.315
2004	Single Family	0	0	0	3,850	0.440
	Multiplex	0	0	0	1,118	0.128
	Green Audits	183	183	906	757	0.086
	CFLs & Kits	9,932	9,932	52	23,885	2.727
	Annual Total	10,115	10,115	—	29,610	3.380
2005	Single Family	0	0	0	3,850	0.440
	Multiplex	0	0	0	1,118	0.128
	Green Audits	133	133	316	790	0.091
	CFLs & Kits	64,263	64,263	57	27,183	3.103
	Annual Total	64,396	64,396	—	32,950	3.761
2006	Single Family	0	0	0	3,850	0.440
	Multiplex	0	0	0	1,118	0.128
	Green Audits	163	163	802	721	0.082
	CFLs & Kits	5,784	5,784	41	27,419	3.130
	Annual Total	5,947	5,947	—	33,108	3.779
Program Totals 1994-2006						
	Single Family	1,599	1,599	—	44,867	—
	Multiplex	235	635	—	13,003	—
	Green Audits	1,500	1,579	—	5,709	—
	CFLs & Kits	339,951	339,951	—	148,091	
	All Buildings	343,285	343,764	—	211,668	—
Electricity Savings Since Start of Program:					**211,668**	**MWh**

NEIGHBORHOOD POWER PROGRAMS:
LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

Program Expenditures

Total program expenditures in 1994-2006 for administration and measures installation were $13,244,611. In 2001, expenditures for the special distribution of lighting measures through the Conservation Kit program were $3,333,954; Conservation Kit expenditures in 2005 were $376,547. Meanwhile, ongoing Neighborhood Power programs cost $257,570 in 2001 ($23,716 for measure installation), $222,215 in 2005 ($4,027 for measure installation), and a total of $9,534,110 over the period 1994-2006. These represent costs to the utility, and not the total resource cost. The Bonneville Power Administration provided $1,643,414 in funding during 1994-1997.

PROGRAM EXPENDITURES FOR THE NEIGHBORHOOD POWER
LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME PROGRAMS
— Completed Projects —

Year	*Administration* (5)	*Measure Installation* (6)	*Total Expenditures*
1994	$676,471	$1,715,497	$2,391,968
1995	803,719	2,586,764	3,390,483
1996	535,468	767,378	1,302,846
1997	200,919	121,884	322,803
1998	119,698	5,497	125,196
1999	232,360	14,374	246,734
2000	286,915	13,363	300,278
2001	366,934	3,224,610	3,591,544
2002	206,622	5,269	211,890
2003	246,792	3,070	249,862
2004	218,998	20,126	239,125
2005	449,452	149,310	598,762
2006	273,120	0	273,120
Total	**$4,617,468**	**$8,627,142**	**$13,244,611**

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

FINANCIAL EFFICIENCY MEASURES FOR THE NEIGHBORHOOD POWER GREEN AUDIT & WEATHERIZATION / WARM HOME PROGRAMS — Per Completed Unit — (7)

Year	*Average Administration*	*Average Installation*	*Average Total Expenditure*	*Administration as a % of Total Expenditures*
1994	$2,168	$5,498	$7,667	28.3%
1995	805	2,592	3,397	23.7
1996	584	837	1,421	41.1
1997	695	422	1,117	62.2
1998	777	36	813	95.6
1999	1,509	93	1,602	94.2
2000	1,749	81	1,831	95.5
2001	1,785	181	1,966	90.8
2002	8,984	229	9,213	97.5
2003	1,285	16	1,301	98.8
2004	1,197	110	1,307	91.6
2005	1,641	30	1,671	98.2
2006	1,676	0	1,676	100.0
Avg. 1994-2006	**$1,115**	**$1,385**	**$2,500**	**44.6%**

BPA FUNDING FOR THE WARM HOME PROGRAM (8)

Year	*Administration*	*Weatherization*	*Total Funding*
1994	$4,112	$262,288	$266,400
1995	0	825,300	825,300
1996	0	549,636	549,636
1997	0	2,078	2,078
1998-2006	0	0	0
Total	**$4,112**	**$1,639,302**	**$1,643,414**

Notes

1. The weighted average measure life of new first-year energy savings over the period 1994-2003 was: 30 years (1994-1995); 27 years (1996); 25 years (1997); 8 years (1998); 10 years (1999); 7 years (2000-2001); and 6 years (2002-2006).

2. Multiplex buildings contain two to four residential units. Among single-family buildings where weatherization work was contracted in 1994, 396 were owner-occupied and 130 were rental units. In 1995, 619 were owner-occupied and 219 were rental units. Combining rental units in single-family and multiplex buildings, the proportion served that is occupied by renters was 45% in 1994 and 47% in 1995.

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

The typical energy usage figures are from the Seattle City Light "1990 Residential Customer Characteristics Survey" (A. Geist, Finance Division, 1992) and "2000 Residential Customer Characteristics Survey" (A. Geist, Finance Division, 2002.)

3. Participation figures include the number of homes where weatherization work was completed. These figures came from program records in the Energy Management Services/Conservation Resources Division, Community Conservation Section. From 1994 through 2002 the program served 634 units in 235 multiplex buildings of these types:

	Duplexes	Triplexes	Fourplexes	Total Multiplexes	Total Units
1994	38	23	12	73	193
1995	65	30	30	125	340
1996	15	3	5	23	59
1997	5	2	4	11	32
1998	0	0	0	0	0
1999	1	0	0	1	2
2000	0	0	0	0	0
2001	0	0	1	1	4
2002	0	0	1	1	4
2003-2006	0	0	0	0	0

4. Energy savings calculations are based on building simulations performed by the Policy & Planning Section. The average electricity savings per unit in 1994-1995 for single-family homes were 2,664 kWh and for multiplex units were 2,044 kWh annually. When the window measure was discontinued and the program was restructured, energy savings for 1996-1997 were revised to 1,839 kWh per single family unit and 1,353 kWh per multiplex unit. During 1996, water heater setbacks were added to the Warm Home measures, with added savings credited for *Green Audit*s.

   Energy savings from *Green Audit* water heater setbacks are calculated at the rate of 61.2 kWh per degree of setback for single family units (3.4 kWh/°F for standby and 57.8 kWh/°F recovery, assuming average usage of 64 gallons per day). The assumptions for multiplex units are 48.6 kWh per degree of setback for multiplex units (3.4 kWh/°F for standby and 45.2 kWh/°F recovery, assuming average usage of 50 gallons per day). In 1996-1997 the average setback was 15°F. Other energy savings assumptions for *Green Audit*s were: 300 kWh per efficient-flow showerhead, 150 kWh for a second showerhead in the same home, 50 kWh per kitchen aerator, 15 kWh per bath faucet aerator, and 60 kWh per compact fluorescent screw-in lamp.

   First year energy savings from all new participants who completed work were: 768 MWh (1994); 2,515 MWh (1995); 1,495 MWh (1996); 369 MWh (1997); 163 MWh (1998); 226 MWh (1999); 434 MWh (2000); 21,899 MWh (2001); 429 MWh (2002); 857 MWh (2003); 686 MWh (2004); 3,685 MWh (2005); and 367 MWh (2006).

5. Program expenditures for City Light Energy Management Services/Conservation Resources Division administration includes the following: salaries, wages, and labor-related costs for field staff and administrative support; office and operating supplies; advertising; contracted operations and maintenance; data processing; and contract unit services. The sources of these administrative data in 1994-2006 are from the Seattle Financial Management System and Summit System for Activity/Work Order Nos. 70505, 70553 and 70575. These figures do not reflect BPA funding.

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, GREEN AUDIT & WEATHERIZATION / WARM HOME

Administrative costs for 1994-2006 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 1994 the A&G overhead charge for *Warm Home* was $195,271, or 29% of Seattle City Light's total programmatic administrative expenditures; in 1995 it was $277,046 (34%).

6. Program weatherization costs were compiled from year-end SFMS and Summit reports from the City Light Finance Division for Activity/Work Order Nos. 70575 and 70505. These figures in 1994-1996 include accruals for work partially completed at year end. While the average installation cost for work completed appeared to be $6,889 in 1994, this calculation was based on accrued costs (included incomplete jobs) divided by buildings completed. The average measure cost for jobs contracted in 1994 was $2,908.

   Also added in 2001 are Conservation Kit (CFL) program costs charged to Activity/Work Order No. 70538. Administrative costs for this program were $133,061 in 2001 while measures cost $3,200,894. Conservation Kits in 2005 were charged to Activity/Work Order No. 70561. Adminstrative costs were $231,264, while measures cost $145,283.

   These figures reflect the total cost of measure installation (including costs incurred by the customer in excess of program allowances). The customer pays these monies directly to the contractor. Presented below are the annual excess payments in nominal dollars by customers as contracted from 1994-2002:

Year	Annual Excess Pmts	Cumulative Excess Pmts
1994	$ 96,518	$ 96,518
1995	122,985	219,503
1996	73,698	293,201
1997	24,672	317,873
1998	5,859	323,732
1999	10,705	334,437
2000	11,361	345,798
2001	8,342	354,140
2002	1,974	356,114
2003-2006	0	356,114

7. Financial efficiency measures are calculated per residential unit for weatherized homes and homes participating in *Green Audits*. Excluded are costs for CFL distributions charged to Activity/ Work Order No. 70538, as with the 2001 Conservation Kit one-time distribution program, and to Activity/ Work Order No. 70561, as with the 2005 Conservation Kit program. The cost of distributing CFLs in 2001 through Conservation Kit mailings were, on average, one dollar in administrative expenses and $18 in measure costs per participating household; administration as a percentage of total expenditures was 4.0%. In 2005 the cost of distributing CFLs were, on average, five dollars in administrative and delivery expenses, and three dollars in measure costs, per participating household. Administrative costs per housing unit served appear unusually high in 2002 due to the low number of green audits performed that year; administrative costs exclusive to green audits are not recorded separately from weatherization and other activities.

8. These data are based on invoices to the BPA during calendar years 1994-1997.

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

Description

Begun in 1997, the LightWise, WashWise, and LaundryWise programs have been operating in conjunction with the Northwest Energy Efficiency Alliance (NEEA). The purpose of the *Residential Retail-Wise* programs is to increase the installation of energy efficient appliances and lighting during normal replacement. In addition to supporting the NEEA market-transformation programs, Seattle City Light and Seattle Public Utilities offer direct rebates for qualifying laundry appliances.

Residential Efficient Lighting: Seattle City Light began promoting efficient residential lighting in 1990 with presentations to Block Watch groups about the benefits of compact fluorescent light bulbs. Informational booklets for residential and small business customers followed that same year. The utility conducted a comprehensive customer lighting survey in 1991 to gauge interest in the new technology and replacement potential.

During the next few years City Light took the lead in transforming the market for efficient residential lighting products. In 1992 the utility coordinated a pioneering regional market-transformation lighting program funded by the Bonneville Power Administration (BPA). While negotiating with the BPA, City Light worked with the Puget Sound Energy and Tacoma Power utilities (then Puget Power & Light and Tacoma City Light). Together, in 1993-1995, these three utilities implemented the *Puget Sound Lighting* program, a catalog of efficient bulbs and fixtures for residential customers.

Finally in 1996, the BPA approved a four-state regional manufacturer buy-down style program called *LightSaver*. This program offered residential customers reduced prices on a variety of high quality compact-fluorescent bulbs in retail stores. For every participating bulb shipped into the territory, the BPA paid the manufacturer $5.00. During the first year, two lighting manufacturers took part, Osram-Sylvania and Lights of America. LightSaver was the first of the market-transformation programs approved by the BPA after it cut funding to general conservation programs in the fall of 1995. Seattle played a key leadership role, networking extensively with regional and national utilities and groups involved with energy efficient lighting, to get this program off the ground. In 1997 the name of the new program was changed to *LightWise*.

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

LightWise: LightWise was a regional multi-utility program that offered reduced in-store prices on a variety of high quality compact fluorescent light-bulbs. The price discounts were provided by Northwest utilities in collaboration with the NEEA. Qualifying products were first identified in the store by a yellow-and-black LightWise sticker on the package. In 1999 the regional program again changed its name, to *Energy Star Lighting,* to include both energy efficient bulbs and fixtures. By this time there were six participating manufacturers of bulbs and five of fixtures. This is the label currently found on qualifying models in area stores. Also in 1999, Seattle took part in the first Torchiere Turn-In event, where customers handed over dangerous halogen floor lamps and replaced them with discounted efficient compact-fluorescent models. In 1997-2000 these lighting programs brought 62,494 qualifying light bulbs and 11,912 fixtures into stores in the Seattle City Light service area, potentially saving 4,836 MWh per year when installed. The 2001 Conservation Kit distribution program (reported under *Neighborhood Power Programs*) induced retail 'spillover' purchasing of 166,418 CF bulbs during 2001, the impact of which is reported here in 2002. City Light customers were also sent *Energy Star Coupons* during 2001-2002 to encourage retail sales of compact fluorescent light bulbs and fixtures. In all, 22,171 bulbs and fixtures purchased with these coupons were acquired from retail stores in the Seattle City Light services area and installed in area homes.

Residential Efficient Appliances: During the years 1993-1996, Seattle City Light took the lead in transforming the market for efficient clothes washing machines. In 1993 The High Efficiency Laundry Metering & Marketing Analysis (THELMA) was launched. THELMA was a market analysis coupled with laboratory testing and end-use metering of efficient residential clothes washers. These primarily have a horizontal axis and clean with less water, energy, and laundry chemicals. The study also was designed to assess market barriers, opportunities, and in-field impacts on resource savings, to pave the way for a market transformation program. Early collaborators included EPRI (the Electric Power Research Institute), Seattle Water Department, and METRO-Wastewater, as well as the BPA, Puget (Sound) Power, and Tacoma Public Utilities. The project, initiated by City of Seattle utilities, attracted a high level of interest. THELMA was eventually sponsored by an international consortium of 29 energy and water utilities and related organizations, including EPRI and the US Department of Energy. By 1995, Seattle City Light had been chosen for an *EPRI Innovator Award*, based on work coordinating the national research project on energy efficient horizontal-axis clothes washing machines.

THELMA completed most phases of research in 1995 to confirm the potential energy and water savings of tumble-action clothes washers. The research paved the way for a regional market transformation program involving many Puget Sound area utilities. Seattle City Light's staff chairing the THELMA project was appointed chair of the regional market transformation program, as well as the national Consortium for Energy Efficiency (CEE) Washer Committee. Seattle also received the EPRI *End Use Leadership Award* for the support and promotion of energy efficient clothes washers. The BPA approved market transformation money for the follow-on program, *WashWise*, in fall 1995, beginning with marketing and informational

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

campaigns. The results from THELMA have also been used to support development of improved federal efficiency standards and labeling for clothes washers.

WashWise: WashWise is a regional, multi-utility program that offered instant, in-store rebates plus possible additional mail-in rebates, on the purchase of new resource efficient clothes washers. All but one of the qualifying in-home models are front loaders, and all use a tumble action process to clean clothes. Tumble-action washers are preferred over conventional top-loading agitator models because qualifying machines use much less energy and water. Purchase prices are higher than for conventional machines with comparable features, but operating costs are lower in the long run. Direct financial support for program advertising comes from the NEEA. The Alliance also provided an in-store rebate of $130 during 1997, which was reset at $75 for 1998, then discontinued in September 1998 with the inauguration of NEEA's Energy Star® labeling program. Since then, Seattle City Light has offered a $50 mail-in rebate per qualifying installed clothes washer (fuel-blind), while Seattle Public Utilities (Water & Waste Water) matches this with an additional $50 mail-in rebate. In 2002, Seattle City Light's $50 rebate was offered in January and during a special promotion during October-November; the standard rebate was lowered to $37.50 during the rest of the year. In response to new federal efficiency standards, in 2004 a three-tier rebate structure was implemented, with rebates of $50, $75, and $100 for models with a minimum Modified Energy Factor (MEF) of 1.42, 1.60, and 1.80, respectively. During 2005 machines were rebated for the percent of both energy and water savings, according to ratings of One Star (27%), Two Stars (35%), or Three Stars (42%). In 1997-2005 retailers sold 31,002 rebate-qualified WashWise machines in the Seattle City Light service area, potentially saving over 9,648 MWh in 2005 on electricity. (1)

LaundryWise: The LaundryWise program offered $50 incentives for installing similar coin-operated tumble-action clothes washing machines in multifamily building common laundries (during 2003 only the rebate was set at $100 per machine). City Light was responsible for marketing the laundry appliance program to customers and dealer participants, for database management, and quality control. In 1997-2005 property managers installed 869 rebate-qualified LaundryWise machines, saving 493 MWh in 2005 on electricity. (1) City Light ended the LaundryWise program with 2004 due to a Seattle Energy Code revision that requires all newly installed coin-operated clothes washers to have a minimum MEF of 1.26. A small number of rebate applications received during 2004 were paid early in 2005.

Other Appliances: In a related appliance activity, Seattle City Light helped arrange for delivery of 410 super-efficient refrigerators for low-income housing within the service area. During 1997, installation of these medium-sized refrigerators garnered 201 MWh in annual energy savings.

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

Eligible Population

These programs serve the 339,640 utility customers residing in single-family homes, multiplexes, mobile homes, condominiums, and multifamily apartment buildings (including common area laundry rooms) within the Seattle City Light service area. A total 2006 population of 741,600 lives in Seattle City Light's 131 square mile service area. (2)

Lifetime of Conservation Measures Installed

6 years for LightWise compact fluorescent (CFL) bulbs, 12 years for Energy Star CFL fixtures, 14 years for Energy Star and WashWise in-home clothes washers, 5 years for LaundryWise coin-operated clothes washers, and 19 years for Energy Star refrigerators. The weighted average lifetime of *Retail-Wise* measures in 1997-2005 is 10 years.

Electricity Savings

The average LightWise compact-fluorescent bulb or Energy Star CFL fixture saves about 65 kilowatt-hours (kWh) per year. Those bulbs and fixtures purchased with *Energy Star Coupons* save about 40.9 kWh per year, while the typical CF bulb bought due to 'spillover' purchasing from the Conservation Kit program saves about 54.5 kWh per year.

According to pre-program market research, the average WashWise tumble-action clothes washer saved about 285 kWh per year in homes with electric water heat; since about one-third of program participants heat their water with natural gas, weighted average savings of 190 kWh per machine were used in energy savings calculations for this program in 1998-2000. During the same period, the average LaundryWise coin-operated tumble-action clothes washer was estimated to save about 770 kWh per year. Under the BPA Conservation Augmentation contract, the regional value of 372 kWh per year was adopted for WashWise machine rebates and 1,579 kWh for LaundryWise machines. In 2004-2006, WashWise machines rated Three Stars save 355 kWh per year while Two-Star machines save 287 kWh and One-Star machines save 216 kWh. LaundryWise machines in 2004-2005 save 450 kWh per year.

In 2006 the energy savings from cumulative (1992-2006) *Retail-Wise* participants were 25,180 megawatt-hours (MWh). The load reduction in 2006 due to this program was 2.874 average megawatts (aMW).

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

ELECTRICITY SAVINGS FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

Year	Buildings by Year	Units by Year (3)	Cumulative Units	kWh Savings per Unit (4)	MWh Savings in Year (4)	Avg. MW Load Reduction in Year
Lighting Programs:						
1997	NEEA LightWise	17,762	17,762	65	1,155	0.132
1998	NEEA LightWise	19,617	37,379	65	2,430	0.277
1999	Energy Star Lighting	28,604	65,983	65	4,289	0.490
2000	Energy Star Lighting	8,423	74,406	65	4,836	0.552
2001	Energy Star Lighting	0	74,406	65	4,836	0.552
2002	Energy Star Lighting	0	74,406	65	4,836	0.552
2003	Energy Star Lighting	0	74,406	65	3,682	0.420
2004	Energy Star Lighting	0	74,406	65	3,682	0.420
2005	Energy Star Lighting	0	74,406	65	3,682	0.420
2006	Energy Star Lighting	0	74,406	65	2,407	0.275
2001	Energy Star Coupons	11,143	11,143	41	455	0.052
2002	Energy Star Coupons	11,028	22,171	41	906	0.103
2003	Energy Star Coupons	0	22,171	41	906	0.103
2004	Energy Star Coupons	0	22,171	41	906	0.103
2005	Energy Star Coupons	0	22,171	41	906	0.103
2006	Energy Star Coupons	0	22,171	41	906	0.103
2002	CF Kit Spillover	166,418	166,418	55	9,070	1.035
2003	CF Kit Spillover	0	166,418	55	9,070	1.035
2004	CF Kit Spillover	0	166,418	55	9,070	1.035
2005	CF Kit Spillover	0	166,418	55	9,070	1.035
2006	CF Kit Spillover	0	166,418	55	9,070	1.035

cont'd.

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

ELECTRICITY SAVINGS FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

(Continued)

Year	Buildings by Year	Units by Year (3)	Cumulative Units	kWh Savings per Unit (4)	MWh Savings in Year (4)	Avg. MW Load Reduction in Year
Laundry Appliance Programs:						
1997	NEEA WashWise	517	517	190	98	0.011
1998	NEEA WashWise	1,871	2,388	190	454	0.052
1999	Energy Star Washers	1,240	3,628	190	689	0.079
2000	Energy Star Washers	0	3,628	190	689	0.079
2001	Energy Star Washers	0	3,628	190	689	0.079
2002	Energy Star Washers	0	3,628	190	689	0.079
2003	Energy Star Washers	0	3,628	190	689	0.079
2004	Energy Star Washers	0	3,628	190	689	0.079
2005	Energy Star Washers	0	3,628	190	689	0.079
2006	Energy Star Washers	0	3,628	190	689	0.079
1998	SCL WashWise	282	282	190	54	0.006
1999	SCL WashWise	2,238	2,520	190	479	0.055
2000	SCL WashWise	5,300	7,820	190	1,486	0.170
2001	SCL WashWise	4,655	12,475	372	3,217	0.367
2002	SCL WashWise	4,611	17,086	372	4,933	0.563
2003	SCL WashWise	4,803	21,889	372	6,719	0.767
2004	SCL WashWise	4,551	26,440	312	8,139	0.929
2005	SCL WashWise	4,562	31,002	331	9,648	1.101
2006	SCL WashWise	5,479	36,481	341	11,517	1.315
1998	SCL LaundryWise	91	91	770	70	0.008
1999	SCL LaundryWise	132	223	770	172	0.020
2000	SCL LaundryWise	253	476	770	367	0.042
2001	SCL LaundryWise	65	541	1,579	469	0.054
2002	SCL LaundryWise	121	662	1,579	660	0.075
2003	SCL LaundryWise	94	756	1,579	739	0.084
2004	SCL LaundryWise	86	842	450	676	0.077
2005	SCL LaundryWise	27	869	450	493	0.056
2006	SCL LaundryWise	0	869	450	390	0.045

cont'd.

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

ELECTRICITY SAVINGS FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

(Continued)

Year	Buildings by Year	Units by Year (3)	Cumulative Units	kWh Savings per Unit (4)	MWh Savings in Year (4)	Avg. MW Load Reduction in Year
Other Appliances:						
1997	Efficient Refrigerators	410	410	490	201	0.023
1998	Efficient Refrigerators	0	410	490	201	0.023
1999	Efficient Refrigerators	0	410	490	201	0.023
2000	Efficient Refrigerators	0	410	490	201	0.023
2001	Efficient Refrigerators	0	410	490	201	0.023
2002	Efficient Refrigerators	0	410	490	201	0.023
2003	Efficient Refrigerators	0	410	490	201	0.023
2004	Efficient Refrigerators	0	410	490	201	0.023
2005	Efficient Refrigerators	0	410	490	201	0.023
2006	Efficient Refrigerators	0	410	490	201	0.023
Programs Total:						
1997	Annual Total	—	—	—	1,454	0.166
1998	Annual Total	—	—	—	3,208	0.366
1999	Annual Total	—	—	—	5,830	0.665
2000	Annual Total	—	—	—	7,579	0.865
2001	Annual Total	—	—	—	9,869	1.127
2002	Annual Total	—	—	—	21,296	2.431
2003	Annual Total	—	—	—	22,006	2.512
2004	Annual Total	—	—	—	23,363	2.667
2005	Annual Total	—	—	—	24,689	2.818
2006	Annual Total	—	—	—	25,180	2.874
Electricity Savings Since Start of Program:					**144,474**	**MWh**

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

Program Expenditures

From 1992 through 2006, Seattle City Light has promoted efficient residential lighting and the LightWise Program with total expenditures to date of $498,001. Expenditures in 1992-1996 were mainly for information services, standards and product development. Research and development of efficient appliance options, including the THELMA clothes washer research project, received $344,038 in support from the utility from 1993 through 2006. Expenditures for implementation of the WashWise and LaundryWise programs totaled $2,081,446 from 1996 through 2006.

Seattle City Light has expended a total of $3,004,142 on Residential Retail Wise Programs between 1992 and 2006. This represents the cost to the utility, and not the total resource cost. Incorporating prorated indirect contributions from other utilities and agencies, the total cost of operating the Retail-Wise Lighting and Appliance Programs in 1997-2006 was about $5,519,242. This excludes the cost to customers for retail 'spillover' purchasing of CF bulbs directly influenced by the 2001 Conservation Kit program.

SEATTLE CITY LIGHT PROGRAM EXPENDITURES FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

Year	*Administration* (5)	*Measures* (6)	*Total Funding*
Residential Lighting Program:			
1992	$11,020	$0	$11,020
1993	38,028	0	38,028
1994	15,586	0	15,586
Total	$64,634	$0	$64,634
SCL LightWise & Coupon Programs:			
1994	$19,556	$0	$19,556
1995	45,738	13,935	59,674
1996	47,566	0	47,566
1997	21,937	0	21,937
1998	10,804	9,758	20,562
1999	27,666	6,874	34,539
2000	55,045	0	55,045
2001	12,541	0	12,541
2002	20,145	0	20,145
2003	15,192	0	15,192
2004	39,481	0	39,481
2005	27,522	0	27,522
2006	0	59,607	59,607
Total	$343,193	$90,174	$433,367

(Cont'd.)

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

SEATTLE CITY LIGHT PROGRAM EXPENDITURES FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

(Continued)

Year	*Administration* (5)	*Measures* (6)	*Total Funding*
Residential Appliance Program:			
1993	$74,045	$0	$74,045
1994	90,445	0	90,445
1995	47,480	0	47,480
1996	22,527	0	22,527
1997	24,622	0	24,622
1998	12,151	0	12,151
1999	4,695	0	4,695
2000	4,593	0	4,593
2001	7,759	0	7,759
2002	5,441	0	5,441
2003	7,145	0	7,145
2004	11,225	0	11,225
2005	13,814	0	13,814
2006	18,096	0	18,096
Total	$344,038	$0	$344,038
SCL WashWise Program:			
1996	$4,842	$0	$4,842
1997	11,486	0	11,486
1998	31,929	14,100	46,029
1999	15,201	111,900	127,101
2000	34,619	265,000	299,619
2001	10,228	258,950	269,178
2002	20,293	162,587	182,880
2003	43,490	177,378	220,868
2004	53,168	214,630	267,798
2005	37,119	229,261	266,380
2006	12,128	261,585	273,713
Total	$274,503	$1,695,391	$1,969,894
SCL LaundryWise Program:			
1998	$6,672	$4,550	$11,222
1999	12,555	8,250	20,805
2000	12,183	11,600	23,783
2001	5,874	3,180	9,054
2002	6,792	2,550	9,342
2003	7,826	12,530	20,356
2004	7,855	6,350	14,205
2005	1,285	1,500	2,785
2006	0	0	0
Total	$61,042	$50,510	$111,552

(Cont'd.)

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

SEATTLE CITY LIGHT PROGRAM EXPENDITURES FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

(Continued)

Year	*Administration* (5)	*Measures* (6)	*Total Funding*
Program Totals 1992-2006:			
1992	$11,020	$0	$11,020
1993	112,073	0	112,073
1994	125,587	0	125,587
1995	93,219	13,935	107,154
1996	74,934	0	74,934
1997	58,045	0	58,045
1998	61,556	28,408	89,964
1999	60,117	127,024	187,141
2000	106,441	276,600	383,041
2001	36,402	262,130	298,532
2002	52,671	165,137	217,808
2003	73,653	189,908	263,561
2004	111,729	220,980	332,709
2005	84,867	230,761	315,628
2006	105,754	321,192	426,946
Total	**$1,168,067**	**$1,836,075**	**$3,004,142**

BPA FUNDING FOR THE RETAIL-WISE LIGHTING PROGRAM

Year	*Administration* (7)	*Incentives*	*Total Funding*
2001	$14,273	$0	$14,273
2002	17,898	0	17,898
2003-2006	0	0	0
Total	**$32,171**	**$0**	**$32,171**

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

VALUE OF CONTRIBUTIONS FROM OTHER AGENCIES FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

Year	***Contributions*** (8)
LightWise / Energy Star Programs:	
1997	$91,300
1998	187,700
1999	232,000
2000	165,300
2001	219,700
2002	203,100
2003	159,500
2004	95,200
2005	96,000
2006	97,500
Total	$1,547,300
WashWise / Energy Star Programs:	
1997	$226,400
1998	336,300
1999	111,200
2000	133,100
2001	26,000
2002	0
2003	0
2004	40,000
2005	44,000
2006	50,800
Total	$967,000
Total 1997-2006	**$2,515,100**

Notes

1. The amount of WashWise rebate customers receive depends on the location of their residence. Seattle City Light customers receive a total of $100 ($50 from SCL and $50 from Seattle Public Utilities, SPU) in a single check. SPU extends their rebate offer to retail customers in their purveyor districts, and these folks only receive $50 from SPU.

   The list of qualifying models is drawn directly from the Consortium for Energy Efficiency's (CEE) list. CEE acts as a national clearinghouse for laboratory test data and updates its list with great speed. Currently the majority of qualifying machines employs a tumble action cleaning method, but two distinct agitator-type units gained qualification in the past year. All of the tumble action machines except one are front-loading. Both agitator-type machines are top loading. All qualifying machines use much less water and energy than conventional washers do.

   At its inception in mid-1997, NEEA provided the majority of the financial support for WashWise advertising and instant, in-store rebates. Water providers like SPU and wastewater utilities like the

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

Lacey–Olympia–Tumwater–Thurston County (LOTT) Wastewater Partnership offered additional mail-in rebates. In September 1998, SCL instituted a $50, fuel-blind rebate to its customers through the mail-in mechanism SPU had already put in place; SPU carries the bulk of the administrative duties for the current City of Seattle WashWise program.

Collaborators on the LaundryWise Program include Seattle City Light, Seattle Public Utilities, Puget Sound Energy, the LOTT Wastewater Partnership, and the City of Kent. Each utility pays its own rebates for installation of qualifying resource efficient clothes washers in multifamily common area laundry rooms, but SCL functions as the clearinghouse for rebate applications. The schedule for rebate payments is as follows: $50 per machine for SCL direct service customers who heat their water with electricity; $50 per machine for SPU direct service customers and customers of its wholesale customers; $50 per machine for PSE direct service customers who heat their water with electricity; $100 per LOTT machine; and $50 per City of Kent machine.

2. The eligible population figures are from the *Seattle City Light 2006 Annual Report.*

3. SCL program participant figures include all rebates approved by City Light in 1997-1999, taken from Seattle Public Utility quarterly invoices. NEEA program participants within the Seattle City Light service territory are reported to Marci Sanders, Northwest Energy Efficiency Alliance, on a monthly basis by the contractor who maintains the "spiff" funding mechanism for tracking sales.

4. The energy savings per measure are based on projections of savings by the Community Conservation Section, drawing from regional research projects and local parameters. Each lighting program participant is deemed to save 65 kWh per lamp or fixture. By year, the numbers of NEEA LightWise bulbs delivered to area stores were: 17,762 (1997); 12,746 (1998); 25,750 (1999); and 6,236 (2000). The numbers of NEEA Energy Star fixtures delivered by year were: 6,871 (1998); 2,854 (1999); and 2,187 (2000).

   The average WashWise tumble-action clothes washer saves about 285 kWh per year in homes with electric water heat. Since about one-third of program participants heat their water with natural gas, weighted average savings of 190 kWh per machine were used in energy savings calculations for the 1998-2000 program. In 2001-2003, the regional value is annual savings of 372 kWh per machine. Beginning in 2004, savings are 355 kWh per year for Three Star machines, while Two-Star machines save 287 kWh and One Star machines save 216 kWh.

   Energy savings are 770 kWh per LaundryWise coin-operated clothes washer in 1998-2000 (assuming all electric-water-heat installations); 1,579 kWH in 2002-2001; and 450 kWh in 2004-2005. Savings per super-efficient refrigerator are 490 kWh per year.

   First year energy savings from new participants installing all types of qualifying RetailWise measures in each year were: 1,454 MWh (1997); 1,754 MWh (1998); 2,622 MWh (1999); 1,749 MWh (2000); 2,290 MWh (2001); 11,427 MWh (2002); 1,935 MWh (2003); 1,459 MWh (2004); 1,520 MWh (2005) ; and 1,870 MWh (2006).

5. Cost data for 1992-2006 incorporate expenditures for administrative labor, office supplies, travel, printing, and customer rebates. Cost data for 1992-2006 are from the Seattle Financial Management System and the Summit System for Activity/Work Order Nos. 70549, 70555, 70564, and 70579.

   Administrative costs for 1993-2006 include an A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours. There were no A&G overhead charges to the *Retail-Wise* programs in 1993. In 1994 the A&G overhead charge was $5,984, or 5% of total programmatic administrative expenditures; in 1995 it was $14,510 (16%). By comparison, in 1999 the A&G service overhead charge for the *Retail-Wise* programs was $8,917, or 15% of total administrative expenditures.

6. Measure costs are documented in the Seattle Financial Management and Summit Systems as interdepartmental invoice payments (Seattle Public Utilities track and pay the combined-utility washer rebate) and as vendor purchases of compact fluorescent bulbs for distribution through efficient lighting informational activities.

   LaundryWise rebates were charged to Summit Activity/Work Order No. 70579 (-04). This account received periodic deposits to cover batches of rebate checks to customers. By year of installation, these LaundryWise rebates were made: $4,550 (1998); $6,600 (1999); $12,650 (2000); $3,250 (2001); $6,050 (2002); $9,000 (2003); $6,450 (2004); and $1,400 (2005). All rebates were paid at $50 each, except for 129 machines installed during 2003 (86 of these rebates were paid during 2003 and 43 were forwarded for payment during 2004).

7. Bonneville Power Administration remitted $14,273 (2001), and $17,898 (2003) to Seattle City Light in reimbursement for the Energy Star Coupon program, which provided all City Light customers with a $6-discount at retail outlets on purchase of qualifying compact fluorescent light (CFL) bulbs and fixtures.

8. The Northwest Energy Efficiency Alliance (NEEA) has provided considerable in-kind support to the regional LightWise and Energy Star Programs. NEEA provided two contractors to run the regional incentive programs and track rebate payments to manufacturers. NEEA continues to produce and print brochures and collateral materials for point-of-sales promotion and informational services. NEEA also provided considerable support for two halogen-torchiere turn-in programs in the City of Seattle.

   In another project, NEEA promoted Energy Star resource-efficient clothes washers; these activities aided the success of City Light's WashWise rebate program.

   Since Seattle City Light's service area contained about 8.0% of the 1997 households and population in the Pacific Northwest territory, NEEA expenditures were prorated by that proportion in this table. During 1997-2006 NEEA expended $19,341,743 for the regional LightWise and Energy Star residential lighting program, and $12,096,937 on the regional WashWise and Energy Star clothes-washer program. NEEA has provided the following proportions of delivery cost (the sum of direct expenditures and in-kind support) for the RetailWise Lighting and Appliance Programs: 85% (1997); 85% (1998); 65% (1999); 44% (2000); 45% (2001); 48% (2002); 38% (2003); 29% (2004); 31% (2005); and 26% (2006).