III. ACTIVE COMMERCIAL – INDUSTRIAL PROGRAMS

2006 COMMERCIAL–INDUSTRIAL HIGHLIGHTS

Seattle City Light provides energy efficiency programs and services to service area businesses through Commercial–Industrial (C–I) programs. The primary focus of activity in these sectors during 2002-2006 was on completion of conservation projects that are eligible for power purchase offsets, which secure Bonneville Power Administration funds under the Conservation Augmentation agreement.

In 2006, City Light secured 6.35 average megawatts (aMW) from contracted energy saving projects with small, medium and large commercial, industrial, institutional, and governmental customers. In so doing, City Light met 98% of the Commercial–Industrial goal (6.50 aMW) and 83% of the utility energy savings goal (7.63 aMW). New contract activity in 2006 was nearly double (166%) the contract activity in 2005 (3.83 aMW).

There were several noteworthy developments during the past five years for medium to large commercial and industrial customers. In 2002, City Light completed the transition from offering two separate conservation programs, to one umbrella entity—Energy Smart Services *(ESS).* The new program motto is "solutions and incentives for business." The Energy Smart Services program continues to offer a comprehensive and flexible set of efficiency services to medium and large commercial, industrial, institutional and governmental customers.

As a consequence of consolidating services through the *ESS* program, the C–I section of the Energy Management Services Division was reorganized to better plan and deliver conservation services. Staff were formed into two Commercial Teams, one New Construction Team, a Public Sector Team, an Industrial Team, a New Technology and Plug Load Team, and a Service Delivery Support Team. A comprehensive *ESS Program Manual* was published in 2002 to describe each *ESS* service, including financial incentives, simple rebates, standard and custom incentives, technical services and operations and maintenance services. In 2003, associated forms and work sheets for customers and trade allies were made available for download from the EnergySmartServices.com Web site.

Beginning with the report issue covering 2002 program activity, newly contracted services are included under the *ESS* program and will be tracked to completion there. The Energy Smart Design (*ESD*) program was discontinued in 2003 and the Energy Savings Plan (*E$P)* program in 2005, with completion of the final projects contracted prior to 2002.

2005 COMMERCIAL–INDUSTRIAL HIGHLIGHTS

Figure 13

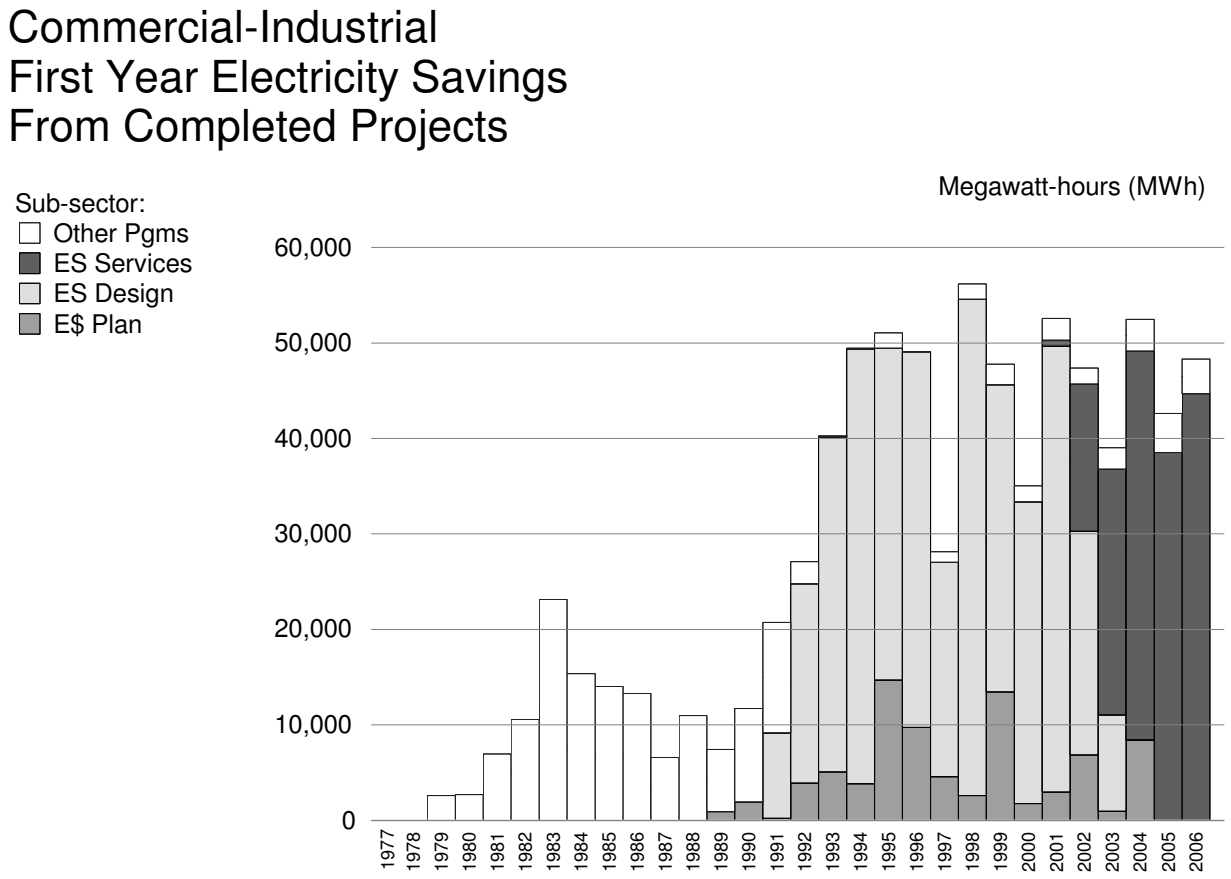

Figure 12 shows first year energy savings from projects completed in C–I programs from 1979 through 2006. Beginning in 1989, shaded areas represent the variety of services to medium and large businesses delivered through the Energy $avings Plan and Energy Smart Design programs (both now discontinued), as well as Energy Smart Services (in its third full year of operation under that umbrella identity). From the perspective of customers, this sequence of program evolution in service offerings has appeared relatively seamless. All told, these three programs are responsible for delivering 5,199,077 MWh of energy savings to date, and reducing the utility system load by 76.71 aMW in 2006. Meanwhile, other C–I programs have delivered 2,240,315 MWh of energy saving to date, and reduced the system load by 5.60 aMW in 2006. Annual acquisition levels rose in 1993-1996 with the ramp-up and down of BPA funding. City Light rallied in 1998-1999 with utility funds, retrenched in 2000, and rallied in again 2001 with the highly successful '10+10' Incentive Bonus for medium and large customers. The '10+10' bonus was repeated again in 2004, and a 'Completion 10' bonus had similar success in 2006.

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Commercial–Industrial energy savings came from:

- Installing more efficient lighting in small businesses;
- Helping medium and large businesses manage operating costs;
- Promoting and financially assisting existing medium and large businesses to make capital investments in a wide variety of end uses and equipment;
- Providing technical advice and efficiency funds for existing buildings;
- Increasing the energy efficiency of new commercial buildings in the design and construction stages;
- Funding commissioning plans for newly constructed buildings;
- Assisting government and institutional customers with multiple, complex sites to acquire energy savings;
- Improving process efficiencies for industrial customers through energy studies and equipment installation; and,
- Promoting leadership on sustainable building practices.

Small Business: The $mart Business Program rebates private-contractor lighting retrofits for small commercial customers. City Light offers both the citywide program and a localized component targeted in the current year Neighborhood Power Project (*NPP*) area. First tested in 1995, the $mart Business Project canvassed small businesses in one neighborhood and directly installed lighting measures. The pilot version of the program was launched in the Fremont (near north central) neighborhood of Seattle under the multi-sector marketing umbrella of the Fremont Neighborhood Power Project. Another small commercial service concept tested in 1997-1998, the Small Commercial Rebate Pilot Project started up to provide efficient lighting for small businesses throughout the City of Seattle, not just neighborhoods selected for targeting by $mart Business. In 1999 this project merged with $mart Business to form the consolidated $mart Business Program.

$mart Business neighborhood services were implemented in the Georgetown / Maple Hill, Beacon Hill, and Sodo (south central) areas of Seattle during 1996-1997; Lake City (northeast Seattle) in 1998; Rainier Beach / Southeast Seattle in 1999; and West Seattle / Delridge / White Center (southwest Seattle) in 2000. City Light also tested targeting additional business-only neighborhoods not likely to be served through the comprehensive *NPP* program; the first areas for this service were Belltown / Denny Regrade (in the northern downtown area) and adjacent lower Queen Anne Hill. In 2001 the target focus moved to the Central Area east of downtown, in 2002 the program served the Greenwood / Phinney Ridge neighborhood in northwest Seattle, and in 2003 activities moved to the adjacent Ballard neighborhood. In 2004 the focus shifted to the North Rainier / International District neighborhood southeast of downtown, in 2005 the program concentrated on the University (of Washington) District, and in 2006 services were provided to the West Seattle/Alki neighborhood.

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During 2006, $mart Business incentives were provided for efficient lighting retrofits to 209 small businesses with estimated energy savings of about 0.43 aMW. Of these businesses, 125 were served through the citywide program and the other 84 through the program's *NPP* component.

Plug Load Services: Plug Load services assist customers by dispensing information to promote the efficient use of office equipment through purchasing and management strategies, control devices, and behavioral changes. One example of these Plug Load services began in 2001 when City Light and the Bonneville Power Administration (BPA) offered incentives to purchase and install VendingMiser™ devices on soft drink vending machines. In 2001-2002 the *ESS* program offered free installation of these control devices for all qualifying cold drink machines through a contracted installer, with plans to install up to 5,000 units over several years. During 2001 and 2002, City Light secured funding through the BPA to support the VendingMiser service to install a total of 2,754 the devices; BPA funding for this service ceased in February 2003. Since then, City Light has provided participating customers with an $80 rebate toward the cost of each VendingMiser installed; another 557 were installed in 2003. Despite the availability of rebates, no new VendingMiser installations occurred during 2004-2006.

New in 2004 and continuing through 2006, City Light offered Cool Rebates for high efficiency, solid-door reach-in commercial refrigerators and freezers. Rebates range from $30 to $200 depending on the type of appliance and number of doors. Qualifying units are Energy Star® rated, or meet the Consortium for Energy Efficiency (CEE) Tier 2 standards—called SuperSavers because they save twice as much as Energy Star models. Cool Rebates are jointly sponsored by Seattle City Light, Tacoma Power, Snohomish County Public Utility District, and Puget Sound Energy. Cool Rebates, begun in mid-year 2004, reduce refrigeration and freezer energy use by 25-55%, depending on the size and type of equipment. By the end of 2005, eight customers installed qualifying models.

Facility Assessment: From its inception in late 1997 through 1999, the Facility Assessment (FA) service was known as the Operations Resource Assessment Service (ORA). Renamed in 2000, the FA service provides a free, multi-resource audit of business facilities to help customers manage their operating costs by identifying specific actions that can reduce electrical, water, and natural gas usage. The number of assessments peaked in 1998-1999 and gradually diminished in 2000-2003, down to one project in 2005 and none in 2006. To offset impacts from the budget decision to end consultant assistance for delivery of FA audits at the end of 2001, utility field staff picked up much of the slack. From 1977 through 2001, FA projects in commercial buildings were posted to *ESD* program tables and projects in industrial facilities were posted to *E$P* tables. Beginning in 2002, when the Energy Smart Services program began, FA projects appear in the respective commercial or industrial portions of the *ESS* tables.

The FA service has been accepted as an effective tool for improved relations with City Light customers and for identifying their energy service needs. Approximately 90 million kWh of electrical energy potential was identified in 225 completed FA audits from late 1997 through

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2005, averaging 441,239 kWh of potential savings per audited site. An important goal for the FA service is to provide a 'gateway' for customers to identify their need for resource efficiency services and to assist in accessing them. Toward that end, most FAs provide referrals to one or more other efficiency services. Of the 225 FAs completed from 1998 through 2005, 74% were referred to the financial incentives available for conservation measures installed through the *ESD*, *E$P*, or *ESS* programs. Participants were also referred to a variety of City services, including the Water Smart Technology Program offered by Seattle Public Utilities, City Light non-incentive services, power factor and power quality correction services, and to the appropriate City Light staff to resolve billing or rate questions. (For more information about Facility Assessments, see the *Energy $avings Plan*, *Energy Smart Design*, and *Energy Smart Services* program entries.)

A comprehensive evaluation of the FA service was completed in 2000, involving 96 projects receiving audits and action plans from January 1998 through June 1999. Telephone interviews with 73 participants revealed that they were quite satisfied with the service and had taken conservation actions on their own to reduce energy consumption and operating costs. In addition, 17 participants received incentives for one or more FA-recommended energy savings measures from the Energy Smart Design or Energy $avings Plan program. Between actions financed solely by the participating customer and those funded by City Light, savings totaled 9,379 MWh. The FA service was quite successful from the viewpoint of cost-effectiveness. For the electrical resource actions alone, the cost was 3.1 cents (levelized, or 31 mills) per kilowatt-hour to the service area and 1.9 cents (or 19 mills) for City Light. Cost-effectiveness improved when non-electrical (water and natural gas) measures were added, resulting in benefit-cost ratios of 1.7 for the service area and 2.6 for City Light.

Commercial Buildings: The Energy Smart Services (*ESS*) program provides free technical advice to commercial and institutional customers on ways to reduce electric energy use in their facilities. Qualifying customers can receive funding for analysis of electrical savings projects, and for installing energy efficient equipment in their facilities.

During 2006, *ESS* contracted 262 incentive projects in new and retrofit commercial facilities with incentive costs totaling $7.0 million. Through these contracts, the program acquired 37,373 MWh in first year energy savings. The 190 *ESS* commercial incentive projects completed in 2006 resulted in 30,605 MWh of savings at a levelized program cost to City Light of 1.9 cents per kWh (for incentives plus program administration). These savings and costs exclude Facility Assessment, Building Commissioning, Energy Analysis Assistance, Tailored Agreement, and Plug Load projects, as well as *E$P* and *ESS* incentive projects in industrial facilities.

The wholesale cost of energy to City Light and other west coast utilities began to increase in mid-2000, peaking late in the year and through mid-2001. The consequent series of utility rate increases have underscored the importance and value of conservation for City Light and our customers. Financial impacts were dramatic, increasing 2001 C–I conservation budgets and

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staffing authorization as well as program goals for contract authorizations. However, during subsequent years, Commercial–Industrial conservation budgets were reduced from their relatively high 2001 level.

During the 1980s and 1990s the commercial construction boom in Seattle provided a unique energy conservation opportunity and C–I conservation staff engaged in exceptional efforts to increase the energy efficiency of the larger downtown buildings, either in the design or construction phases. However, the national and regional economic slowdown experienced since mid-2001 through 2004 reduced the number of new large building construction projects in Seattle. Nonetheless, serving the energy efficiency needs of new commercial buildings remains a high priority. The key objective is to make new buildings as efficient as possible when they are built, rather than face more costly or impractical retrofits a few years later. City Light seeks to capture potential 'lost opportunities' from the outset.

In 2003, June 30th was the established deadline for projects permitted under the 1997 Seattle Energy Code to retain their baseline status in the Energy Smart Services Program. Because of that deadline, there was a deluge of new construction projects coming through in mid-year that yielded substantial energy savings. City Light also implemented a new Technology Demonstration Bonus of 10% to promote newer, cutting-edge energy efficiency measures and strategies in *ESS* projects.

In order to stimulate greater conservation investments in the Utility service area, City Light made two temporary incentive bonus offerings for efficiency projects. The '10+10' bonus incentive offering, first implemented in 2001, was re-instituted in 2004. Medium and large commercial and industrial customers who signed an *ESS* contract by December 15, 2004, secured a 10% increase to the ordinary program incentive. In addition, those who also installed the *ESS* measures and had them inspected and approved by July 15, 2005, secure a second 10% increase to the program incentive. This '10+10' bonus was very successful at increasing energy savings when first used in 2001, and was used again in 2004. $mart Business Program participants were also offered a bonus, 20% of the ordinary incentive, if they signed a simplified rebate agreement by the end of 2004. Although the 10+10 bonus was not offered during 2005, the *ESS* program did offer a 'Completion 10' bonus in 2006, giving a 10% incentive bonus to customers who install and complete projects by September 30, 2006. Each of the bonus offers boosted participation.

Major new construction projects completed and receiving final *ESS* incentive payments during 2006 included the City of Seattle Joint Training Facility, University of Washington Research and Technology Building, University of Washington Bioengineering Building, 2200 Westlake, Washington Mutual-Seattle Art Museum Building, and the Costco Wholesale Building on 4th Avenue South

Several major ongoing public and private commercial new construction projects began in 2006 or were continued from 2005. Ongoing private sector incentive and commissioning projects include

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the Cosmopolitan Condominiums, Alley 24 (East building), 1521 Second Avenue, the Goat Hill Office Building and Parking Garage, and James Tower Life Sciences Building. Active public new construction projects continuing in 2006 include Harborview Medical Center – Inpatient Expansion (King County), and Sound Transit's light rail stations at Westlake, Royal Brougham, the International District, and Pioneer Square

Beginning with the opening of the new Justice Center in late May 2003, a significant group of new City-owned buildings have been completed that incorporate Leadership in Energy and Environmental Design (LEED™) ratings. Between 2002 and 2006, 20 major municipal LEED projects were completed. Of these, five were awarded Gold LEED ratings, four were rated Silver, two were Certified, and nine are completed but pending official certification. Another City-owned building applied for but was not granted certification. LEED certification requires specified levels of energy, water, and waste water efficiency, building commissioning, air quality, daylighting, and design excellence. Commercial–Industrial Conservation staff from City Light have been actively involved in the design of these buildings, and all of these projects will eventually receive City Light financial incentives for many of the installed energy conservation measures.

Commercial Regional Initiatives: City Light negotiated funding in 2003 from the Northwest Energy Efficiency Alliance (NEEA) to pilot test three new services. The first initiative was to develop and test a new commercial building operations and maintenance (O&M) service, called 'Building Performance Services'. This service is designed to test the feasibility of increasing the operating performance of existing medium and large sized commercial buildings with complex heating, ventilation, and air conditioning systems. The service focuses on enhancing building operations and maintenance practices, energy tune-ups, and building commissioning. In 2004 a total of five Building Performance Services projects were completed in City Light's service area: Westin Building, Blanchard Plaza, Unico Financial Center, 600 Broadway Medical Center, and Children's Hospital. Besides City Light, three other utilities and state agencies are currently partnering with the Northwest Energy Efficiency Alliance on their own similar projects: Puget Sound Energy, Snohomish County Public Utility District, and the Energy Trust of Oregon. Although the building performance recommendations for 2004 participants continued to be implemented during 2005, there were no new 2005 participants in the City Light service area.

The second NEEA initiative was a study of five projects in the City Light service area where there was interest in employing 'natural ventilation', a sustainable design strategy that can reduce HVAC energy use. During 2004, City Light participated with NEEA and the Energy Studies in Buildings Laboratory of the University of Oregon to produce an educational booklet titled, "Natural Ventilation in Northwest Buildings." This booklet provides guidance to building designers to they can incorporate the energy efficiency and occupant comfort advantages of natural ventilation. This guide continues to be distributed to building owners and architectural and engineering firms in City Light's service area.

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The third NEEA initiative was to test a new energy assessment software and decision process, called One-2-Five, with five industrial customers. The process is intended to help executives in selected large industrial and institutional facilities to understand the potential value of energy conservation, and to begin integrating energy efficiency into their long-term financial and operational plans. A consultant provided by NEEA worked with City Light to meet with four large customers to encourage their participation. During 2004-2005, participants included Rail Products, Northwestern Industries, Ash Grove Cement, and Seattle Public Schools.

Two other offerings of NEEA market transformation initiatives began in 2006: the Commercial Sector Initiative (CSI) and the Industrial Efficiency Alliance (IEA). NEEA expects to offer these initiatives throughout the region through the year 2015. The overall goal of the CSI is to make energy efficiency an integral part of business decision-making within three commercial market segments: hospitals, grocery stores, and office buildings, by affecting building design, construction, and operations. The IEA will focus on two regional industrial market sectors: food processing, and pulp and paper manufacturing. NEEA and its contractors will administer and evaluate both the CSI and IEA with the cooperation of participating utilities such as Seattle City Light. NEEA's market transformational approach will complement but be separate from City Light's incentive-based *ESS* program.

City Light helped plan and co-sponsored the Powerful Business Conferences held in Seattle during May 2003, 2005, and 2007. These one-day conferences are targeted to commercial building owners and managers, building operations and engineering staff, architects, consulting engineers, property developers, and other parties interested in cost-effective opportunities in commercial energy efficiency. Four to five parallel tracks of sessions focus on building energy savings opportunities, operations and maintenance issues, engineering, energy management, new design topics, and the latest technologies. Presented by the Electric League of the Pacific Northwest and the Northwest Energy Efficiency Council, other sponsors include Puget Sound Energy, Snohomish County Public Utility District, and the NEEA Better Bricks program.

Also in 2003, City Light launched the *ESS* Professional Development Series, beginning with a five-day Direct Digital Controls course. Customers, trade allies, and personnel from other utilities were invited to enroll in this training opportunity with Energy Management Services Division staff. In 2004 a Building Commissioning course was offered. The Professional Series was not continued in 2005 but may be offered again in the future.

Tailored Agreements: Between 1994 and 1996, seven Tailored Agreements were signed, involving four major public-sector agencies with multiple, complex sites. Tailored Agreement projects are large, multi-year contracts involving facilities at the University of Washington, Seattle Public School District, King County, and City of Seattle. During 1999-2002 contracts were completed with these Tailored Agreement partners. With one partner, the University of Washington, Tailored Agreements continued on under the Energy Smart Services Program.

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

Building on this strong foundation, City Light is looking forward to a long-term partnership with the University of Washington on energy management and sustainability. In December 2003 a new *ESS* Tailored Agreement was signed with the University of Washington for $1,052,556 to acquire 5,757 MWh of expected savings. In February 2005 a contract amendment was signed for another $447,444 and 2,627 MWh of expected savings. Another contract amendment was executed in December 2006 for $510,000 and 2,910 MWh of expected savings. In all, a total of $2.01 million was authorized to acquire 11,294 MWh in contracted first-year savings. In May 2004 a partial completion payment of $400,356 was made for 2,133 MWh of first-year savings from elements of the tailored agreement completed to date. During 2005 two additional partial payments totaling $270,407 were made to the University for another 1,496 MWh of first-year savings. In 2006 another partial payment of $600,401 was made 3,164 MWh of first-year savings. The remainder of work and incentive payments are expected to occur in 2007-2008.

Municipal Conservation: City of Seattle departments have experienced a number of challenges in pursuing energy efficiency projects for multiple reasons. These include exhaustion of the Municipal Conservation Fund administered by the Office of Sustainability and Environment (OSE), higher utility rates following the 2001 West Coast energy crisis, and cutbacks in budget and staffing due to reduced General Fund revenues. Because of these factors, the Energy and Environmental Policy committee of the Seattle City Council asked City Light conservation staff to pursue avenues to provide additional support for hard-hit City departments in order to reduce bills and improve operations.

In response to this request, City Light undertook four activities in 2002. The Commercial–Industrial section created a four-person Public Sector Team to focus on conservation assistance to governmental organizations. The targeted customers for this team include the City of Seattle, suburban cities, King County, State of Washington, the federal government, and public schools. City Light proactively contacted public sector facility management staff (especially within the City of Seattle) to provide briefings on conservation services, including free facility assessments, technical assistance, and financial incentives for retrofit projects and new construction. The utility continued to actively promote energy efficiency in public buildings in the design and construction stages; providing financial assistance for energy analysis of promising conservation measures. City Light also worked closely with Parks Department staff to identify and prioritize additional conservation projects for 2003 and beyond.

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During 2004, City Light undertook numerous projects in Seattle municipal facilities. These included lighting retrofits at the Seattle Animal Shelter, Seattle Center, and City Light's South Service Center; one new construction and fifteen retrofit lighting projects at various Seattle Parks Department facilities; energy analysis assistance for Northgate Library and Community Center; combined lighting, HVAC, and energy analysis assistance for Park 90/5 Building C; and commissioning of Park 90/5 Building A. In 2003 these also included lighting retrofits at Lincoln High School, Seattle Center, and Seattle Parks Department facilities; a custom incentive project at City Light's South Service Center; and three energy analysis assistance projects for Seattle Public Libraries. This last group of library projects is an example of recent design assistance in public buildings. Besides working with the City of Seattle, C–I staff provided assistance with several other public entities including the Seattle Monorail Project, Sound Transit, and Fircrest School (now closed). C–I staff also continue to participate actively in the City's Green Building Team.

In 2005 City Light added several more City facilities to the *ESS* program, including three new construction projects: an Energy Analysis Assistance project at Fire Station #10, and lighting and HVAC projects at Northgate Community Center and Northgate Library. Retrofit projects in City-owned buildings include efficient thermostat replacements at several Seattle Public Schools, a lighting retrofit at City Light's South Service Centers, and HVAC and exit sign retrofits at the Seattle Center.

Beginning in 2005, the Seattle Parks Department convened a Utility Summit program to reduce their budget deficit by focusing on increased efficiency in consumption of electricity, natural gas, and water resources. This multi-utility, multi-year effort involves the Parks Department, Seattle Public Utilities (water, wastewater, solid waste and recycling), Seattle City Light (electricity), and Puget Sound Energy (gas). The Utility Summit was in the planning phase during 2005. When the Parks Department receives budget authorization from the Seattle City Council in 2006, City Light will provide *ESS* incentives to reduce electricity use by the Seattle Aquarium, two swimming pools facilities, and several buildings in Magnuson Park. Other projects will be added in the future.

During 2006 new City-owned facilities receiving *ESS* program incentives included lighting and lighting controls at the North Cascades Environmental Learning Center, HVAC and lighting measures in the City of Seattle Joint Training Facility, and efficient elevators in Seattle Housing Authority buildings.

Industrial Efficiency Projects: The Energy Smart Services (*ESS*) program provides free technical advice to industrial customers on ways to reduce electric energy use in their facilities. Qualifying customers can receive funding for analysis of electrical savings projects, and for installing energy efficient equipment in their facilities.

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During 2006 a total of 68 industrial incentive contracts were executed under the *ESS* program. Through these contracts the program acquired 9,956 MWh in first-year energy savings. The 51 industrial incentive projects completed in 2006 produced 10,940 MWh of first-year savings and 1.31 aMW of load reduction, at a levelized program cost of 1.5 cents per kWh to City Light (including incentives and program administration), and 3.0 cents per kWh to the service area (including customer costs).

Major industrial process efficiency projects completed and receiving final ESS incentive payments during 2006 included Korry Electronics and Alaska Copper and Brass, among others.

From 1988 through 2001 the Energy $avings Plan (*E$P*) program supplied industrial customers with assistance to improve process efficiency and achieve savings on their bills. The program provided funding for energy studies and for installation of qualifying energy management projects. Efficiency projects at industrial facilities were also funded through the Energy Smart Design (*ESD*) program, as well as *E$P*. Typically, the *ESD* projects involve non-process related measures such as lighting and HVAC equipment replacement.

Apart from motor-replacement rebates, the number of projects contracted through *E$P* increased each year from 1988, peaking at 21 in 1995; since then the number dropped to as few as two per year (in 1998 and 2000). This change reflected a significant increase in the number of industrial projects handled by the *ESD* program through 2003.

In 2002-2006 all new contracted industrial incentive projects are delivered through the Energy Smart Services (*ESS)* program. Energy savings and expenditures for *E$P* projects contracted prior to 2002 continued to be reported in the *E$P* program entry until the last project was completed in 2004.

Five case studies were completed on *E$P* projects during 1997-1999. The purpose of these impact evaluations was to measure for the first time the full value of industrial projects. The case studies measured value to the participating customers and to Seattle City Light (these values combined reflect the service area benefit). Measures included energy and demand savings indexed to changes in production, non-energy benefits, and cost-effectiveness from several perspectives. A routine verification process conducted before the evaluations set the levelized cost across all five projects as 2.1 cents per kWh. However, the case study evaluation found that the actual cost was slightly less than half the pre-evaluation estimate. The additional metered and production-indexed savings measured in the case studies, along with demand savings and the economic value of non-energy impacts, lowered the average service area levelized cost to only 1.0 cents per kWh.

Industrial Regional Initiatives: During 2005, City Light in conjunction with the Northwest Energy Efficiency Alliance (NEEA) provided a one-day training workshop on efficient industrial ventilation systems. Attending were 30 customers and utility representations from four Puget

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Sound utilities. In addition, City Light staff designed and presented a three-hour workshop on efficient industrial lighting technology.

In 2006, NEEA began an Industrial Efficiency Alliance regional program, including the City Light service area. This program is the industrial market transformation equivalent of the NEEA Commercial Sector Initiative. The focus of the Alliance program is to work directly with industrial firms within the food processing, pulp and paper sectors, their trade allies, and their utilities, to help reduce market barriers and make energy efficiency an integral part of industrial decision-making and plant operations. As is the case with the Commercial Sector Initiative, NEEA will administer and evaluate the Industrial Efficiency Alliance program. NEEA's market transformational approach will complement but be separate from City Light's incentive-based *ESS* program.

Lighting Design Lab: The Lighting Design Lab continues to provide lighting technical services for commercial and industrial companies across the region. A significant accomplishment in recent years was expanding the Internet web-site use from 8,000 hits a month in 1999 to an average of 35,821 hits each month during 2005; this number doubled to 72,844 hits in 2006. The web-site address is lightingdesignlab.com. During 2006 the Lab had 2,151 on-site visitors representing customers and trade allies, even while the facility was remodeled in 2005-2006. This total includes attendees of on-site training classes, meetings, Lab tours, Lab library and other users, and lighting product representatives.

The Lighting Design Lab also continued to implement the seventh year of NW Energy Efficiency Alliance (NEEA) contracts providing expanded services to the region. During 2006, the Lab Project Manager met periodically with members of the Lab Technical Advisory Committees (TAC), composed of representatives from Spokane, Boise, Missoula, and Portland. During the year the Lab conducted off-site lighting training classes throughout Washington, Oregon, Idaho and western Montana, which drew an additional 1,105 attendees, about half the number as 2005.

And although the Lighting Design Lab is a regional resource, Seattle City Light customers take advantage of the assorted technical assistance services available to them. Almost 54% of all the visitors coming to the facility represent Seattle ratepayers. Among City Light commercial and institutional lighting consultations in 2006 were new construction projects at Swedish and Virginia Mason Hospitals, Boeing, the Port of Seattle, Seattle Aquarium, Starbucks, the Heartwood Corporation, and a LEED project at the Eighth and Virginia building.

In 2006, the Lighting Design Lab began to provide efficient lighting support to the new Integrated Energy Design (IED) Lab, which is co-located with it in Seattle. There are five other Integrated Energy Design Labs located in Eugene and Portland, Oregon; Spokane, Washington; and Bozeman and Boise, Idaho. The new IED Lab is part of NEEA's expanded efforts to provide educational assistance and technical support to commercial building design professionals. The

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goal is to increase the adoption of integrated design and other high performance building practices in new construction and major retrofit projects.

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 Planning and Development (DPD)—formerly 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 1998-2006, Commercial–Industrial staff worked with DPD on State energy code changes. A new Seattle Energy Code will take effect in 2007. Seattle is proud to keep this link strong in the construction market-transformation chain.

Greenhouse Gas Reduction: A Seattle City Council resolution adopted in 2000 requires that City Light meet all future electric load growth with no net increase in greenhouse gas emissions. Seattle was the first U.S. city to establish such a zero net greenhouse gas goal. This directive provided the framework for ongoing City Light climate protection activities including a power purchase agreement in 2001 for 100 MW from the Stateline Wind Project, greenhouse gas mitigation activities, and continued conservation acquisition. The two-prong path of renewables and conservation are how City Light and its customers can make a meaningful contribution to reducing greenhouse gases while benefiting the local economy.

The Power Management Division of City Light monitors the performance of Stateline, located in Eastern Washington and Oregon. In July 2004 City Light increased its wind purchase to 175 MW. Because wind is not available in every hour of the year, the capacity factor for production is typically around 25%.

Around 40 aMW were delivered in each of the past three years—40 aMW in 2004 (348,672 MWh), 37 aMW in 2005 (327,302 MWh), and 44 aMW in 2006 (384,539 MWh). This level compares to initial levels of 12 aMW (106,493 MWh) in 2002 and 25 aMW (216,290 MWh) in 2003.

The Environmental Affairs Division of City Light is responsible for the greenhouse gas mitigation (GHG) program. City Light achieved its zero net greenhouse gas emissions goal in 2005. Through support of bio-diesel use in local transportation fleets (including trucks, buses, and ferries), shore-side power for cruise ships, and other GHG mitigation efforts, City Light offset the equivalent of 257,000 metric tonnes of carbon dioxide in 2005 to achieve this goal. As demand for bio-diesel builds, local production will increase, prices are expected to come down, and this should encourage more widespread use. The result is cleaner air and a reduction in GHG emissions from reduced petroleum use.

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In 1997, the City of Seattle was awarded a local government grant by the International Council for Local Environmental Initiatives (ICLEI) to administer the Environmental Protection Agency (EPA) Climate Wise program. Climate Wise invited companies to voluntarily inventory their GHG emissions, improve energy efficiency, and raise their bottom lines. The grant to the City was renewed each year through 2001, during which time the Energy Management Services / Conservation Resources Division partnered with more than 40 customers drawn from industry, large commercial facilities, retailers, local institutions, and small companies. In 2002, the EPA replaced Climate Wise with the Climate Leaders program and administered the program at the national level. These programs have helped demonstrate the value of non-regulatory approaches to solving, at the local level, growing cross-border environmental concerns.

In 2002, City Light adopted the World Business Council for Sustainable Development – World Resources Institute's *Greenhouse Gas Protocol* for reporting its own emissions. The EPA Climate Leaders program and California's Climate Action Registry use this same protocol. Improved GHG emission management and reporting tools continue to be adopted by forward thinking businesses worldwide.

Throughout 2004, the Energy Management Services / Conservation Resources Division and Environmental Affaires Division participated in a regional stakeholder process to develop climate protection action strategies for Puget Sound convened by the Puget Sound Clean Air Agency (PSCAA). The final report, "Roadmap for Climate Protection: Reducing GHG Emissions in Puget Sound" was completed in December 2004. In alignment with City Light goals, the number one priority recommendation was to "maximize energy efficiency and increase renewable energy in the region's power mix".

In 2005, Seattle Mayor Greg Nickels appointed a "Green Ribbon Commission" of business, environmental, and governmental leaders, including City Light Superintendent, Jorge Carrasco. Their charge was to plan and develop recommendations for pragmatic and effective solutions to global warming that can be implemented on the local level. One strategy is to partner with large Seattle area employers – key customers of City Light. A year earlier, Mayor Nickels challenged U.S. mayors to lead the way on climate actions to meet Kyoto treaty goals; over 200 cities from 38 states have already responded. With the Seattle Mayor's leadership, and building on its conservation, 'green power', and GHG reporting and mitigation efforts, City Light offers customers a broad range of practical climate solutions.

In 2006 the U.S. Mayors Climate Protection Agreement, spearheaded by Seattle Mayor Greg Nickels, was adopted by several hundred mayors from throughout the U.S. This initiative commits the involved cities to meet or exceed the carbon emissions reduction target set forth in the Kyoto Protocol. The Kyoto Protocol was ratified by 141 countries; however, the United States administration did not agree to or sign the protocol. The goal of the Mayors Climate

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Protection Agreement is by 2012 to reduce carbon emissions in the U.S. by seven percent below the 1990 levels.

Voluntary Green Power Program: Consistent with Washington State law (RCW 19.29A), City Light began offering customers a voluntary green power program option starting in 2002. The initial program was called Seattle Green Power, with customer contributions funding the development of new renewable resources, with emphasis on local solar electric demonstration projects. Starting in 2005, a new voluntary option, the Seattle Green Up program, allows customers to buy green power for a portion or all of their electricity use, supplied by renewable energy certificates (RECs), or 'green tags' from the Stateline Wind Project and other resources such as small wind turbines, dairy biogas and landfill gas, and other regional projects. Both programs allow customers to pay for green power through regular bills or separate payments.

While the Seattle Green Power program was not actively marketed in 2006, over 3,800 customers, the majority of whom are residential customers, continue to support local renewable energy projects. In 2006 monthly revenues averaged $18,749, and projects were completed at Parkwood Elementary School, Nihonmachi Terrace Apartments, and Mountlake Community Center. Since 2002, City Light has completed 22 solar projects at schools, parks, and other public sites around Seattle, accounting for a total of 65 kilowatts of solar generation capacity

The solar installations at both new and existing buildings serve to educate the building community—owners, managers, architects, engineers, contractors, building officials—and the general public about the benefits of renewable power. The solar installations improve operating experiences and help transform the market. Many of the buildings hosting solar installations have been certified through the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) program. Most of the recent solar projects are wired for real-time internet-based data monitoring with links from City Light Green Power website, www.cityofseattle.net/light/green/greenpower/.

Partnerships with various public and non-profit educational institutions continue to add program value. In the past, City Light has collaborated with Washington State University's Northwest Solar Center, the Pacific Science Center, the University of Washington, and Seattle University. The Solar Center advises City Light customers and helps train professionals about solar electric technology and building integration. The Science Center redesigned their popular "Volts and Jolts" student assembly program, adding a strong green power message to its existing electricity education curriculum. The program continues to support the annual Solar Washington and the annual Shoreline Renewable Energy Fairs, highlighting many of the demonstration sites. In 2006, City Light began developing a solar education program focusing on elementary schools in cooperation with the Bonneville Environmental Foundation, which is planned for release in 2007

In response to national and regional growth in green power markets, and demand from business customers, City Light launched the Green Up program in 2005. Green Up provides a

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competitively priced green power product similar to national offerings so customers can buy green power for a fixed percentage of their electricity use, to meet corporate goals, or state or national environmental performance standards. The Green Up program goals are to serve and strengthen City Light's customer relationships, augment the existing Green Power demonstration program, and further support City of Seattle energy, sustainability, and climate action initiatives.

The Green Up program for Seattle City Light commercial customers began in July 2005 in partnership with Unico Properties, a key customer that signed up to purchase over 260 megawatt-hours per month of green power at the Gold level of participation. Business participation is recognized at Participant, Silver, Gold, and Platinum levels based on minimum Green Up percentages for each of five customer size categories. Beginning in 2005, City Light developed a green power partnership with the University of Washington that built upon a well established conservation partnership. To date, City Light's largest Green Up customer is the University of Washington, with a current purchase of 1,246 megawatt-hours per month. At the end of 2006 the University of Washington project accounted for nearly half of all Green Up program revenue. Other large commercial purchasers of green power during 2006 include Seattle University, the largest Platinum customer to date, and the U.S. General Services Administration for their U.S. Courthouse in Seattle and Jackson Federal buildings.

In October 2005, Green Up was launched for residential customers as part of a co-promotion with PCC Natural Markets. Through January 2006, residential customers were offered a promotional gift if they signed up for a minimum period of nine months. Over 2,000 residential customers signed up for Green Up through early 2006. A promotion with Pagliacci Pizza later in 2006 resulted in residential participation of 2,336 by the end of the year.

During 2006, City Light reported total sales of $509,370 for 33,958 megawatt-hours of retail green power sold. Although this accomplishment does not place City Light in U.S. Department of Energy's top ten list of utility voluntary green power programs, the potential for future growth is promising. With greater awareness of climate issues, customers increasingly inquire about ways to "green" their energy and reduce their climate impacts. In 2006, program staff attended national green power marketing conferences and engaged leading green power marketing organization in preparation for meeting new program challenges.

Sustainable Building: Seattle, Washington and Portland, Oregon pride themselves as being national leaders in energy and environmental issues, specifically in "green" building. The region has a small but growing number of individual successes in the area of sustainable building. The concept of sustainable building is defined as designing, constructing, and operating buildings and landscapes to optimize economic, environmental and social performance. To do this all phases of a building's life cycle needs to incorporate energy efficiency, water conservation, healthy building materials and finishes, superior indoor environmental quality, and sustainable siting and transportation.

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Encouraging sustainable building in private sector development continues to be a goal of the Seattle City government. The Energy Management Services / Conservation Resources Division has assumed a major role in promoting these activities over the last few years through sponsorship of the Northwest Regional Sustainable Building Action Plan in 1997, completion of the Sustainable Demand Project grant in 2000 and early 2001, development and sponsorship of the Sustainable Building Advisor Certificate Program, and continuing participation in the City's Green Building Team. (For more information about Sustainable Building, see the *Sustainable Design and Energy Code Programs* entry in SECTION III: ACTIVE COMMERCIAL–INDUSTRIAL PROGRAMS.)

Sustainable Demand Project, 2000 Grant. Work began in late 1999 and continued throughout 2000 on the Sustainable Demand Project. In-depth research of all available case studies around the country demonstrated that sustainable building techniques that provide high quality lighting and daylighting, as well as superior indoor air quality, result in benefits such as increased worker productivity, reduced absenteeism, increased retail sales, and dramatic school test score improvements. At the same time energy consumption and operational costs are reduced. Most dramatically, the financial value of the first three benefits greatly exceeded the financial value of energy and operational savings.

In order to determine whether this information would compel them to incorporate sustainable building techniques into building projects, these benefits were presented to 85 development decision makers—developers, building owners, architects and their consultants, tenants and facility managers. The simple answer was 'no'—simply providing decision-makers with information is insufficient to motivate them to design and construct buildings differently. Standing in the way are many barriers, led by a strong first-cost fixation. Further, the traditional linear decision-making process inherent in the development industry, and established professional relationships that depend on predictable performance, preclude innovation in the building market.

High Performance Building Team. Out of these grant interviews and research of current literature came awareness of the need to integrate the decision-making process. It should involve building end users-tenants and facility managers-in early decision charettes to incorporate sustainable building goals for the project. Modeled on the City's Green Building Team, the High Performance Building Team (comprised of many of the same City staff) conducted pilot charettes during 2000 with three private sector projects. This was an experiment in early intervention to incorporate sustainable building techniques and to pursue Leadership in Energy and Environmental Design (LEED™) certifications.

One of the lessons learned with the High Performance Building Team was intervention with a team of City staff could be somewhat intimidating and did not necessarily create the intended atmosphere of collaboration. Further, some of the costs associated with LEED certification, particularly the costs of registering and documenting a project and the costs of energy modeling,

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still stood as significant barriers. In 2001, City Light and Seattle Public Utilities co-sponsored a new *LEED Incentive Program* to overcome those problems.

LEED and Built Green Incentive Programs. Early LEED incentive applicants were multi-family residential projects for which LEED 2.0 is not a well-suited benchmarking tool. Seattle City Light and Seattle Public Utilities introduced a *Built Green Incentive Program* in July 2002, based on use of the Multi-Family Built Green™ checklist developed by the Master Builders Association (MBA) of King and Snohomish Counties for their member builders. Unlike LEED, which has extensive documentation requirements, Built Green is self-certifying. Funding for Built Green Incentive projects is provided on a multifamily-unit basis to help defray the associated costs of MBA membership, and dues and application fees associated with participating in the Built Green program. Threshold levels for the Incentive program are somewhat higher than the third and highest level defined by the MBA Built Green program. Top levels of funding reach maximums of $15,000 and $20,000 for projects that achieve performance levels comparable to achieving LEED Certified and Silver for commercial buildings.

During five years of incentive funding from 2001 through 2005, 21 projects have been awarded LEED incentive funding and five projects have received Built Green funding. Of these 26 projects, 14 have completed construction, seven are under construction, four are still in design, and one was on hold at the end of 2005.

LEED Renewable Energy Credit. The United States Green Building Council approved a credit interpretation submitted by the Energy Management Services Division that would allow City Light customers (and in particular LEED projects) to purchase 50% of their electrical energy needs from renewable sources.

Response to City Council Resolution 30280. This resolution adopted in February 2001, requests that a plan be developed to accelerate green building activities within City of Seattle-owned and private sector buildings. One item in the resolution was the requirement that the Seattle Energy Code exceed the American Society of Heating, Refrigeration and Air Conditioning Engineers energy efficiency standards by 20% (ASHRAE 90.1, 1999). City Light representatives participated in 26 meetings that DCLU conducted with private sector professionals to discuss the implementation of that policy. An amended Seattle Energy Code was adopted in late 2001 and took effect March 1, 2002. The City's Green Building Team, with active participation of City Light staff, will address sustainable building activities in all Seattle building market segments.

By 2005 a total of 38 facilities owned by the City of Seattle have registered to achieve LEED certification. Two were rated Certified: Fisher Festival Pavilion and High Point Community Center; three were rated Silver: Seattle Justice Center, Central Public Library, and Park 90/5 Building A; three were rated Gold: Carkeek Park Environmental Learning Center, Park 90/5 Building C, and Seattle City Hall; four have applications pending: Southwest Police Precinct, Cedar River Treatment Facility Operations Building, North Cascades Environmental Learning

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Center, and Yesler Community Center; and one did not achieve a LEED rating: Marion Oliver McCaw Performance Hall. Four more public sector LEED buildings will be completed and occupied between 2005 and 2006: the Police and Fire Department Joint Training Center, Northgate Public Library and Northgate Community Center, the SPU Operations Control Center; and one large LEED remodeling project, Seattle Municipal Tower. Together these projects exceed three million square feet of facilities. Another 19 municipal LEED projects are in the design stage for completion by 2013.

In 2002 an interdepartmental committee was formed to plan and conduct an evaluation of selected City of Seattle-owned LEED buildings. The evaluation is designed to include a broad array of the environmental indicators (energy and water savings and air quality), social benefits (occupant comfort, satisfaction and health), and economic indicators. The economic portion of the evaluation includes a cost-effectiveness analysis of the life-cycle costs and benefits derived from the LEED measures incorporated in these buildings. Due to budget limitations, only two of the most recently completed LEED buildings were scheduled for inclusion in the first phase of the LEED evaluation: the Justice Center and City Hall. Final evaluation results are expected in late 2006 or early 2007. Additional City-owned LEED buildings may be included in the evaluation at a later date if resources become available.

Sustainable Building Advisor Certificate Program. Developed in 1999 by City Light, along with Seattle Central Community College, this program educates industry professionals on sustainable building strategies. The eighth course series began in October 2005, now expanded in the first year of study from six months to nine months in length. Over the six years this course has been offered, more than 200 industry professionals have received a comprehensive grounding in sustainable building theory, methodologies, strategies and hands-on experience. Mount Hood Community College signed an agreement to license the program for use in Western Oregon; and Coiste na n-larchimí, a community development organization in Ireland, has also licensed the program. In 2005 a non-profit organization, NASBAP (National Sustainable Building Advisor Program) was formed to license the curriculum nationally to community colleges.

Support of Sustainable Neighborhoods. The Conservation Resources Division has taken the lead in Citywide collaborative efforts to encourage sustainably developed neighborhoods in the South Lake Union and High Point neighborhoods. Beyond supporting neighborhood sustainability goals, each neighborhood is being encouraged to use benchmarking tools—LEED™ and Built Green™ —as measures of performance.

In 2006 the City of Seattle's Green Building Program, previously an ad-hoc committee composed of representatives from various City Departments, was restructured as a formal service unit within the Department of Planning and Development with an advisory committee drawn from Seattle City Light, Seattle Public Utilities, and the City Office of Sustainability and the Environment. The restructuring was accomplished to provide more accountability for the new

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unit, called 'City Green Building', and to provide an enhanced opportunity to provide green building services to the City's private sector development customers.

The LEED Incentive Program, initiated in 2001, was upgraded in 2006 to increase the threshold requirements for participation, requiring specific energy, water, recycling and solid waste credits to insure performance satisfying the service goals of the two funding departments, Seattle City Light and Seattle Public Utilities. Three funding levels were created for LEED Silver, Gold, and Platinum performance to motivate higher levels of performance than the previous incentive, which provided financial assistance for LEED Certified and Silver performance. At the end of 2006 the LEED Incentive Program was terminated, to be replaced in 2007 with more focused incentive assistance in areas of performance that relate to the City and utility environmental and conservation goals.

In 2007, 'City Green Building' and Seattle City Light will assume increased responsibility for developing climate change mitigation strategies in response to the Mayor's Climate Initiative, U.S. Mayors Climate Protection Agreement, Mayor Nickels' Green Ribbon Commission On Climate Protection, and the U.S. Conference of Mayors' adoption of the '2030 Challenge' at their annual conference in early fall of 2006. The '2030 Challenge' is a program to promote the immediate reduction by 50% of fossil fuel use in buildings, both public and private sector, incremented by 10% increases in that reduction every five years, with the intention that buildings will be greenhouse gas neutral by the year 2030.

Finally, City Light's traditional energy conservation programs contribute significantly to sustainability. These programs save customers money, create healthier workplaces, and reduce air pollution and greenhouse gas emissions. In 2006, the Conservation Resources Division was very active in promoting sustainability through its ongoing residential and commercial–industrial incentive and technical assistance services.

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Description

In 2002 a new entity, Energy Smart Services, replaced the former Energy $avings Plan (*E$P*) and Energy Smart Design (*ESD*) programs. The new program continues to serve customers with commercial new construction, existing commercial building retrofits, and industrial facilities. New contracting through the *E$P* program was discontinued at the end of 2001; the final open contract was completed in early 2004. New contracting through the *ESD* program was also discontinued at the end of 2001; the final open contracts were completed during 2003. This Energy Smart Services (*ESS*) program entry reflects commercial and industrial projects contracted during 2002-2006, some of which were also completed during those years.

ESS Incentive services offer funding to commercial and industrial customers as simple rebates for exit signs and occupancy sensors, or as standard incentives for lighting and HVAC equipment and motors. The customer also has the option of custom incentives to fund new efficiency technologies, as well as upgrades to equipment unique to industrial and commercial settings.

Incentive funding levels for simple rebates are set at $20 (retrofit) or $30 (new) per exit sign. Simple rebates for retrofits of wall mounted occupancy sensors are $30 per unit or $90 per unit for ceiling mounted sensors. Standard incentives range from 13 to 14 cents per kilowatt-hour (kWh) of first-year energy savings for new lighting fixtures, while those for retrofit lighting are set at 10 cents. Controls for HVAC, lighting and daylighting are funded at 17 to 21 cents. HVAC equipment (other than HVAC controls) range from 20 cents for air-to-air heat pumps to 29 cents for chillers.

Custom incentive funding levels for industrial process equipment range from 1 to 15 cents per first-year kWh, depending on the expected measure life. The custom incentives for non-process equipment (lighting, HVAC, and refrigeration) are set at 2 cents for equipment with a one-year measure life, ranging up to a high of 37 cents for equipment with a 30-year estimated measure life. The custom incentive cost cap, or maximum limit of City Light's funding, is set at the incremental cost, up to 70% of the total measure cost. The incremental cost is equal to the cost of the higher efficiency equipment minus the cost of baseline, less efficient equipment. *ESS* does not provide incentives for projects with less than six months of simple payback to customers.

ESS also offers a set of technical assistance services, including Facility Assessments, Energy Analysis Assistance, and Building Commissioning Assistance. The Facility Assessment (FA) audit, is offered to commercial and industrial customers. The no-cost service is designed to help customers manage their operating costs in existing facilities and identify specific action items that can reduce both energy and non-energy (e.g., water) usage. Services provided to customers

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through the program include a resource-use audit at the customer's facility, a report which includes recommended actions for reducing the use of electricity, water, and other resources at the facility, and a joint City Light–customer action plan for implementing report recommendations. The FA service is also designed as a way for customers to be referred to other City Light services that could help them.

Operations and maintenance (O&M) services are repairs, replacements, and adjustments of existing or new equipment to maximize efficiency and ensure continued savings over the life of the measures. *ESS* integrates O&M recommendations as part of their Facility Assessment service. A second channel for *ESS* O&M services can be made through their inclusion in the Incentive services contract between City Light and the customer. The scope of work specified under the City Light funding contract includes the conservation measures being funded and a list of any O&M actions needed to ensure those funded systems are operating properly. City Light payment is made after the measures and O&M actions have been completed.

Energy Analysis Assistance (formerly Design Assistance under *ESD*) provides customers with in-depth analysis of proposed electrical energy conservation measures not covered by standard incentives. Energy Analysis Assistance is offered for measures that show potential electrical energy savings and require detailed engineering analysis in order to realize the savings. The list of measures covered by an Energy Analysis Assistance contract is agreed upon in advance by the customer, the consultant, and the City Light Energy Management Analyst. City Light pays 100% of the cost of the consultant analysis contract for new construction applications. For Energy Analysis Assistance in existing facilities, City Light offers the customer a contract paying for half the cost of the engineering analysis. Payment is made upon review and approval of the final analysis report by City Light. Reimbursement for the second half of the Energy Analysis is provided if the customer installs all recommended measures in the analysis report having paybacks less than 2.5 years within 18 months of the payment for the first half of the Energy Analysis Assistance contract.

Building commissioning is a process to ensure that the energy systems within a facility perform in accordance with the design intent, contract requirements, and owner operational needs. The *ESS* program provides financial and technical support for the building commissioning process in new construction, and major remodel projects with construction budgets over $5 million. Building commissioning and related funds support development of a commissioning plan early in the building development process, and assessment of energy impacts from commissioning activities.

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Plug Load services cover those devices in a building that are not hard-wired to the electrical system, but are plugged into electrical outlets (such as copiers, computers, fax machines, vending machines, refrigerators and freezers). *ESS* Plug Load services assist customers by dispensing information to promote the efficient use of office equipment through purchasing and management strategies, control devices, and behavioral changes. Such advice can range from simply turning off equipment when it is not being used, buying Energy Star® equipment, engaging the "sleep" mode of personal computers and copiers, installing equipment controllers to automatically turn off equipment not being used, to the installation of VendingMiser™ on soft drink vending machines (a device that reduces energy usage by 35-40%).

In 2001-2003 the *ESS* program offered free installation of VendingMisers for all qualifying cold drink machines through a contracted installer, with plans for up to 5,000 units over several years; to date a total of 3,311 have been installed. The Bonneville Power Administration picked up the cost of these installations by merging them into the program being operated independently by the BPA, and the contractor reimbursed City Light for equipment purchased in 2001 through early 2003. Since February 2003, when the BPA program ceased, City Light has provided participating customers with an $80 rebate toward the cost of each Vending Miser they install. Although City Light continued to offer them, no new VendingMiser rebates were made during 2004-2006.

New in 2004, City Light offered Cool Rebates for high efficiency, solid-door reach-in commercial refrigerators and freezers. Rebates range from $30 to $200 depending on the type of appliance and number of doors. Qualifying units are Energy Star rated, or meet the Consortium for Energy Efficiency (CEE) Tier 2 standards—called SuperSavers because they save twice as much as Energy Star models. Cool Rebates are jointly sponsored by Seattle City Light, Tacoma Power, Snohomish County P.U.D., and Puget Sound Energy.

Eligible Population:

The *ESS* program focuses on new and existing, medium and large commercial, institutional, and government buildings, as well as industrial facilities. *ESS* also serves business chains, franchises, and campuses, even if individual meters are defined as small accounts. Occasionally *ESS* provides assistance for central systems in high-rise multifamily residential buildings (such as HVAC, elevators, and controls). In 2004, Seattle City Light had 34,362 commercial accounts (of which about 2,885 or 8% qualify for *ESS* services, the remainder being small commercial accounts qualified for *$mart Business* services). The program also serves business facilities where there is manufacturing, processing, or refining activity; in 2006 City Light had 236 industrial customers. (1)

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Lifetime of Conservation Measures Installed

The lifetimes of industrial process measures vary, with an estimated average lifetime of 16 years. The lifetimes of measures for commercial new construction and commercial retrofit projects range from 5 to 35 years, depending on the type of measure; the average lifetime is 15 years. (2)

Electricity Savings

This section contains two tables. The first depicts projects contracted by City Light during the calendar year. This table shows the potential energy savings that will be realized when the projects are completed. Commercial projects may take up to three years to move from contract to completion. 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. Because the *ESS* program began in 2002, taking over from *ESD* and *E$P*, the 2002 first-year and cumulative savings are the same. For a description of first-year savings from current year participants only, see the referenced footnotes. The line titled "electricity savings since start of program" sums savings across all the years from program inception through the current reporting year. This illustrative construct exceeds the actual savings experienced in any given calendar year.

The following tables document savings from all *ESS* projects. In 2006 the energy savings from cumulative completed projects, including financed and facility assessment projects, were 165,736 megawatt-hours (MWh). The load reduction in 2006 due to this program was 18.920 average megawatts (aMW). Following are more details about financed projects, facility assessments, plug load services, and non-incentive projects.

Financed Projects: Financed projects receive incentives from Seattle City Light; 330 were contracted in 2006. Based on an evaluation of the predecessor *ESD* program, all *ESS* savings from 2002-2005 projects, as estimated by engineering calculations, were reduced by 5% for commercial retrofits and 51% for commercial new construction. Beginning with 2006, these adjustment factors were revised. Engineering calculations for commercial new construction and commercial retrofit non-lighting projects are no longer adjusted, while calculations for commercial retrofit lighting projects are reduced by 5%.

Energy savings for 2002-2006 industrial process projects are estimated at 100% of tracking system values, because these savings are typically verified through post-installation metering. In 2002-2005, energy savings for non-process end-uses in industrial facilities are reduced by 5%;

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virtually all industrial projects occur in existing facilities. Beginning in 2006, industrial process savings are unadjusted while lighting projects in industrial facilities are adjusted downward by 5%.
First-year savings for *ESS* financed projects contracted during 2006 totaled 49,239 megawatt-hours (MWh), or 5.621 average megawatts (aMW). Most of the contracted projects will be completed in 2006-2007. Energy savings for all *ESS* financed projects contracted since program inception were 220,410 MWh, producing a load reduction in 2006 of 25.161 aMW.

Energy savings are estimated for 241 financed projects completed in 2006. Projects and their associated energy savings are not counted as completed until the year in which the participating customer receives their final incentive payment. However, in the case of tailored agreements, energy savings are recorded as work in each facility is begun and completed, since measures are installed in multiple facilities over several years for these customers. (A tailored agreement as a whole will be noted under "projects by year" when the full complement of work under the contract is done). Partial payments for the component elements of work from a tailored agreement are included in the "completed" column of the expenditures table in the year when they occur.

As with contracted projects, the projected savings for financed projects completed in 2002-2005 were reduced by 5% for commercial and industrial non-process retrofit projects, and by 51% for commercial new construction projects. Beginning in 2006, only commercial and industrial lighting retrofit projects are adjusted (reduced by 5%) from engineering calculations. First-year energy savings for *ESS* financed projects completed during 2006 were 44,708 MWh, or 18.386 aMW. Energy savings for all *ESS* financed projects completed since program inception were 161,057 MWh, producing a load reduction in 2006 of 18.336 aMW.

Facility Assessment Audit: Realization of savings from Facility Assessment (FA) reports and action plans is dependent on the customers arranging appropriate financing and installing the conservation measures in the facilities. This financing can be done by the customers themselves or through the *ESS* program offered by Seattle City Light. When the customers themselves finance these actions, the savings are presented in the completed savings table under the Facility Assessment category. Savings financed by City Light through the *ESS* program are presented in the table under the relevant program incentive component (Commercial Retrofit or Industrial).

During 2006, no Facility Assessment (FA) reports and action plans were contracted or completed in the *ESS* program. From *ESS* program inception through 2006, FA savings for commercial customers were 536 MWh, producing a load reduction in 2006 of 0.061 aMW; and for industrial customers, 134 MWh, producing a load reduction in 2006 of 0.015 aMW.

Plug Load Services: The Vending Miser™ device reduces energy usage in soft drink vending machines by 35-40%. City Light contracted with a firm to install up to 5,000 Vending Misers over several years. By the end of 2001, a total of 531 units had been installed in the Seattle City

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Light service area, acquiring an estimated 640 MWh of annual energy savings. During 2002-2003, another 2,780 units were installed in the Seattle City Light service area, acquiring an additional 3,353 MWh of first-year energy savings. No new VendingMiser installations or rebates occurred in 2004-2006. Since program inception, these units produced 3,993 MWh of annual savings, a load reduction of 0.456 aMW. Cool Rebates, begun in mid-year 2004, offer incentives to reduce refrigeration and freezer energy use by 25-55%, depending on the size and type of equipment. By the end of 2006, eleven customers installed qualifying models, acquiring an estimated 16 MWh of annual electricity savings.

Non-incentive Projects: Electrical energy savings are also achieved by customers who receive facility assessments or technical assistance from City Light, and then install conservation measures at their own expense in their facilities. These measures consist of both equipment replacement, and operation and maintenance actions. From 1996 through 2001, non-incentive savings in *industrial* facilities are included in the *E$P* program entry narrative and in *commercial* facilities are shown in the *ESD* entry narrative. Beginning with 2002 and thereafter, non-incentive savings in both the commercial and industrial sectors are included here in the *ESS* program entry. (3)

During 2002-2006, a total of 5,657 MWh of non-incentive savings were acquired in commercial buildings and 612 MWh were acquired in industrial facilities. About 88% of these savings result from equipment replacements, with the remaining 12% being operation and maintenance actions. During 2005-2006, no commercial or industrial customers took non-incentive conservation actions. The non-incentive savings are <u>not</u> included in the following *ESS* savings tables. For a summary of non-incentive energy savings, see *Table 12: Seattle City Light Conservation Plan Accomplishments*, in SECTION I: SUMMARY OF ACCOMPLISHMENTS AND EXPENDITURES.

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

Year	Contracted Project Type	Projects by Year (4)	Cumulative Projects	kWh Savings Per Project	MWh Savings in Year (5)	Avg. MW Load Reduction in Year
Commercial New Construction:						
2002	Energy Analysis	3	3	0	0	0.000
	Incentives	18	18	161,088	2,900	0.331
	Building Commissioning	3	3	0	0	0.000
2003	Energy Analysis	5	8	0	0	0.000
	Incentives	33	51	264,458	11,627	1.327
	Building Commissioning	9	12	0	0	0.000
2004	Energy Analysis	4	12	0	0	0.000
	Incentives	28	79	139,340	15,528	1.773
	Building Commissioning	5	17	0	0	0.000
2005	Energy Analysis	3	15	0	0	0.000
	Incentives	19	98	62,752	16,720	1.909
	Building Commissioning	3	20	0	0	0.000
2006	Energy Analysis	2	17	0	0	0.000
	Incentives	27	125	248,491	23,420	2.675
	Building Commissioning	0	20	0	0	0.000
Potential Electricity Savings Since Start of Program:					70,205	MWh
Commercial Retrofit:						
2001	Plug Loads	531	531	1,206	640	0.073
2002	Facility Assessment	7	7	22,343	156	0.018
	Energy Analysis	2	2	0	0	0.000
	Incentives	169	169	114,376	19,330	2.207
	Building Commissioning	1	1	0	0	0.000
	Plug Loads	2,223	2,754	1,206	3,321	0.379
2003	Facility Assessment	16	23	22,343	514	0.059
	Energy Analysis	4	6	0	0	0.000
	Incentives	146	315	169,090	44,017	5.025
	Tailored Agreement	1	1	5,757,000	5,757	0.657
	Building Commissioning	0	1	0	0	0.000
	Plug Loads	557	3,311	1,206	3,993	0.456
2004	Facility Assessment	0	23	0	514	0.059
	Energy Analysis	5	11	0	0	0.000
	Incentives	266	581	155,122	85,279	9.735
	Rebates	3	3	1,290	4	0.000
	O&M Incentive Services	0	1	249,090	249	0.028
	Tailored Agreement	0	1	0	5,757	0.657
	Collaborative Projects	1	1	1,723,292	1,723	0.197
	Building Commissioning	1	2	0	0	0.000
	Plug Loads	0	3,311	0	3,993	0.456

(Cont'd.)

ENERGY SMART SERVICES PROGRAM

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

(Continued)

Year	Contracted Project Type	Projects by Year (4)	Cumulative Projects	kWh Savings Per Project	MWh Savings in Year (5)	Avg. MW Load Reduction in Year
2005	Facility Assessment	1	24	22,343	536	0.061
	Energy Analysis	9	20	0	0	0.000
	Incentives	132	713	112,454	100,123	11.430
	Rebates	5	8	1,984	14	0.002
	O&M Incentive Services	0	1	0	249	0.028
	Tailored Agreement	0	1	2,626,750	8,384	0.957
	Collaborative Projects	0	1	0	1,723	0.197
	Building Commissioning	0	2	0	0	0.000
	Plug Loads	0	3,311	0	3,993	0.456
2006	Facility Assessment	0	24	0	536	0.061
	Energy Analysis	2	22	0	0	0.000
	Incentives	232	945	127,847	129,784	14.815
	Rebates	3	11	879	16	0.002
	O&M Incentive Services	0	1	0	249	0.028
	Tailored Agreement	1	2	2,910,000	11,294	1.289
	Collaborative Projects	0	1	0	1,723	0.197
	Building Commissioning	0	2	0	0	0.000
	Plug Loads	0	3,311	0	3,993	0.456
Potential Electricity Savings Since Start of Program:					437,865	MWh
Industrial:						
2002	Facility Assessment	5	5	22,343	112	0.013
	Energy Analysis	0	0	0	0	0.000
	Incentives	23	23	266,991	6,141	0.701
2003	Facility Assessment	0	5	0	112	0.013
	Energy Analysis	2	2	0	0	0.000
	Incentives	30	53	194,269	11,969	1.366
2004	Facility Assessment	1	6	22,343	134	0.015
	Energy Analysis	1	3	0	0	0.000
	Incentives	89	142	206,228	30,323	3.462
2005	Facility Assessment	0	6	0	134	0.015
	Energy Analysis	2	5	0	0	0.000
	Incentives	37	179	249,203	39,544	4.514
2006	Facility Assessment	0	6	0	134	0.015
	Energy Analysis	1	6	00	0	0.000
	Incentives	68	247	146,418	49,500	5.651
Potential Electricity Savings Since Start of Program:					138,102	MWh

(Cont'd.)

ENERGY SMART SERVICES PROGRAM

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

(Continued)

Year	*Contracted Project Type*	*Projects by Year* (4)	*Cumulative Projects*	*kWh Savings Per Project*	*MWh Savings in Year* (5)	*Avg. MW Load Reduction in Year*
Total Program:						
2001	All Service Types	531	531	—	640	0.073
2002	All Service Types	2,454	2,985	—	31,959	3.648
2003	All Service Types	803	3,788	—	77,988	8.903
2004	All Service Types	405	4,193	—	143,505	16.382
2005	All Service Types	211	4,404	—	171,420	19.569
2006	All Service Types	336	4,740	—	220,659	25.189
Potential Electricity Savings Since Start of Program:					**646,172**	**MWh**

ENERGY SMART SERVICES PROGRAM

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

Year	*Contracted Project Type*	*Projects by Year* (4)	*Cumulative Projects*	*kWh Savings Per Project*	*MWh Savings in Year* (5)	*Avg. MW Load Reduction in Year*
Commercial New Construction:						
2002	Energy Analysis	0	0	0	0	0.000
	Incentives	11	11	141,890	1,561	0.178
	Building Commissioning	1	1	0	0	0.000
2003	Energy Analysis	3	3	0	0	0.000
	Incentives	18	29	159,911	4,439	0.507
	Building Commissioning	5	6	0	0	0.000
2004	Energy Analysis	5	8	0	0	0.000
	Incentives	26	55	267,415	11,392	1.300
	Building Commissioning	6	12	0	0	0.000
2005	Energy Analysis	5	13	0	0	0.000
	Incentives	19	74	77,259	12,860	1.468
	Building Commissioning	4	16	0	0	0.000
2006	Energy Analysis	1	14	0	0	0.000
	Incentives	24	98	225,898	18,281	2.087
	Building Commissioning	2	18	0	0	0.000
Electricity Savings Since Start of Program:					48,533	MWh
Commercial Retrofit:						
2001	Plug Loads	531	531	1,206	640	0.073
2002	Facility Assessment	4	4	22,343	89	0.010
	Energy Analysis	0	0	0	0	0.000
	Incentives	87	87	99,270	8,637	0.986
	Building Commissioning	0	0	0	0	0.000
	Plug Loads	2,223	2,754	1,206	3,321	0.379
2003	Facility Assessment	17	21	22,343	469	0.054
	Energy Analysis	1	1	0	0	0.000
	Incentives	129	216	130,038	25,411	2.901
	Tailored Agreement	0	0	0	0	0.000
	Building Commissioning	0	0	0	0	0.000
	Plug Loads	557	3,311	1,206	3,993	0.456
2004	Facility Assessment	2	23	22,343	514	0.059
	Energy Analysis	6	7	0	0	0.000
	Incentives	147	363	145,463	46,794	5.342
	Rebates	3	3	1,290	4	0.000
	Tailored Agreement	0	0	2,132,825	2,133	0.243
	Collaborative Projects	1	1	1,723,292	1,723	0.197
	Building Commissioning	0	0	0	0	0.000
	Plug Loads	0	3,311	0	3,993	0.456

(Cont'd.)

ENERGY SMART SERVICES PROGRAM

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

(Continued)

Year	Contracted Project Type	Projects by Year (4)	Cumulative Projects	kWh Savings Per Project	MWh Savings in Year (5)	Avg. MW Load Reduction in Year
2005	Facility Assessment	1	24	22,343	536	0.061
	Energy Analysis	2	9	0	0	0.000
	Incentives	200	563	129,946	72,784	8.309
	Rebates	5	8	1,984	14	0.002
	O&M Incentive Services	1	1	138,510	139	0.016
	Tailored Agreement	0	0	1,496,574	3,629	0.414
	Collaborative Projects	0	1	0	1,723	0.197
	Building Commissioning	0	0	0	0	0.000
	Plug Loads	0	3,311	0	3,993	0.456
2006	Facility Assessment	0	24	0	536	0.061
	Energy Analysis	5	14	0	0	0.000
	Incentives	163	726	154,473	97,963	11.183
	Rebates	3	11	879	16	0.002
	O&M Incentive Services	0	1	0	139	0.016
	Tailored Agreement	0	0	3,164,368	6,794	0.776
	Collaborative Projects	0	1	0	1,723	0.197
	Building Commissioning	0	0	0	0	0.000
	Plug Loads	0	3,311	0	3,993	0.456
Electricity Savings Since Start of Program:					291,705	MWh
Industrial:						
2002	Facility Assessment	0	0	0	0	0.000
	Energy Analysis	0	0	0	0	0.000
	Incentives	11	11	221,954	2,441	0.279
2003	Facility Assessment	3	3	22,343	67	0.008
	Energy Analysis	0	0	0	0	0.000
	Incentives	26	37	191,196	7,413	0.846
2004	Facility Assessment	3	6	22,343	134	0.015
	Energy Analysis	0	0	0	0	0.000
	Incentives	27	64	311,565	15,825	1.806
2005	Facility Assessment	0	6	0	134	0.015
	Energy Analysis	1	1	0	0	0.000
	Incentives	63	127	149,067	25,216	2.879
2006	Facility Assessment	0	6	0	134	0.015
	Energy Analysis	1	2	0	0	0.000
	Incentives	51	178	214,503	36,156	4.127
Electricity Savings Since Start of Program:					87,520	MWh

(Cont'd.)

ENERGY SMART SERVICES PROGRAM

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

(Continued)

Year	*Contracted Project Type*	*Projects by Year* (4)	*Cumulative Projects*	*kWh Savings Per Project*	*MWh Savings in Year* (5)	*Avg. MW Load Reduction in Year*
Total Program:						
2001	All Service Types	531	531	—	640	0.073
2002	All Service Types	2,337	2,868	—	16,049	1.832
2003	All Service Types	759	3,627	—	41,793	4.771
2004	All Service Types	227	3,857	—	82,512	9.419
2005	All Service Types	301	4,155	—	121,028	13.816
2006	All Service Types	250	4,404	—	165,736	18.920
Electricity Savings Since Start of Program:					**427,758**	**MWh**

ENERGY SMART SERVICES PROGRAM

Program Expenditure

Administrative expenditures and participant payments for partial or completed projects ("Actual Expenditures in Year") totaled $43,576,023 from 2002 through 2006. During 2006, total expenditures were $10,581,649. Incentive payments encumbered by customer contracts were $8,453,046 in 2006 and $37,841,416 from 2002 through 2006. Expenditures for serving Facility Assessment participants are reported under the administrative expenditures.

PROGRAM EXPENDITURES FOR THE ENERGY SMART SERVICES PROGRAM (5)

			Incentive Payments to Participants			
Year	***Project Type***	***Admini-stration***	***Contracted Projects*** (6)	***All Payments for Projects Completed in Year*** (6)	***Actual Expenditures in Year***	***Total Expenditures***
2002	Commercial New	$237,693	$1,259,819	$598,663	$628,496	$866,189
	Commercial Retrofit	1,048,805	3,088,431	1,057,240	1,066,085	2,114,890
	Industrial	385,152	852,894	363,041	220,223	605,375
	General Administration	1,295,538	0	0	0	1,295,538
	Annual Total	2,967,188	5,201,144	2,018,944	1,914,804	4,881,991
2003	Commercial New	401,687	3,463,229	1,320,777	1,323,216	1,724,903
	Commercial Retrofit	1,281,537	4,758,243	2,731,051	2,859,583	4,141,120
	Industrial	362,499	919,550	704,473	712,008	1,074,508
	General Administration	1,204,354	0	0	0	1,204,354
	Annual Total	3,250,076	9,141,022	4,756,301	4,894,807	8,144,884
2004	Commercial New	333,538	1,639,235	2,634,536	2,634,536	2,968,074
	Commercial Retrofit	1,535,671	6,709,612	3,467,493	3,190,151	4,725,822
	Industrial	497,974	2,644,947	1,560,412	1,178,491	1,676,465
	General Administration	1,016,698	0	0	0	1,016,698
	Annual Total	3,383,881	10,993,794	7,662,441	7,003,178	10,387,059
2005	Commercial New	271,338	431,127	625,595	625,595	896,933
	Commercial Retrofit	1,639,955	2,270,851	4,296,858	4,447,571	6,087,526
	Industrial	490,087	1,350,432	1,206,062	1,212,089	1,702,176
	General Administration	893,806	0	0	0	893,806
	Annual Total	3,295,186	4,052,410	6,128,515	6,285,255	9,580,440
2006	Commercial New	243,314	1,363,102	1,193,189	1,217,562	1,460,876
	Commercial Retrofit	1,566,757	5,637,744	4,476,416	4,556,559	6,123,316
	Industrial	460,657	1,452,200	1,660,766	1,574,992	2,035,649
	General Administration	961,809	0	0	0	961,809
	Annual Total	3,232,537	8,453,046	7,330,375	7,349,112	10,581,649
TOTAL PROGRAM		**$16,128,868**	**$37,841,416**	**$27,896,576**	**$27,447,156**	**$43,576,023**

ENERGY SMART SERVICES PROGRAM

Notes

1. The eligible population figures are from the *Seattle City Light 2004 Annual Report*.

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

3. The source of non-incentive savings data is the "non-incentive table" of the Commercial–Industrial Tracking System (CITS). Non-incentive savings in commercial facilities were 560 MWh (2002); 2,303 MWh (2003); 2,545 MWh (2004); 0 MWh (2005); and 249 MWh (2006). Non-incentive savings in industrial facilities were 599 MWh (2002); 0 MWh (2003); 13 MWh (2004); 0 MWh (2005); and 0 MWh (2006). Over the period 2002-2006, non-incentive project savings reduced the City Light energy load by 0.753 aMW.

4. Data on the number of completed and contract-executed projects were obtained from the Commercial–Industrial Tracking System (CITS) database, maintained by the Commercial–Industrial Section. The total MWh savings reported by year reflect savings for the current year participants plus savings in that year from all prior participants.

   First year energy savings from commercial participants completing work in each year were: 640 MWh (2001); 12,968 MWh (2002); 20,705 MWh (2003); 32,240 MWh (2004); 29,124 MWh (2005); and 33,768 MWh (2006). First year energy savings from industrial participants completing work in each year were: 0 MWh (2001); 2,441 MWh (2002); 5,038 MWh (2003); and 8,479 MWh (2004); 9,391 MWh (2005); and 10,940 MWh (2006).

   Energy Analysis Assistance projects are advisory and therefore do not result in energy savings, unless the customer decides to follow-up on the audit by completing an incentive project. Electrical energy savings for Facility Assessment audit projects cover those FA-recommended actions financed by customers on their own. Energy savings for FA projects that eventually receive incentives through the *ESS* program are listed under the relevant program components (e.g., Commercial Retrofit Incentives). An evaluation of the Operations and Resource Assessment Service (May 2000) revealed that customer-financed savings average 22,343 kWh annually per project. This estimate has been adjusted using the same realization rate used for *ESS* existing buildings (0.95).

5. Information on 2001-2006 costs for administration were gathered from the Seattle Financial Management System and Summit System for Activity/Work Order Nos. 70571-01, -02, -05, -06, -07, and -85. Administrative costs for 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.

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

ENERGY SMART SERVICES PROGRAM

Load services was charged to *ESD* Activity/Work Order Nos. 70588-05 (2001); and 70571-01, -06 (2002-2003). Plug Load incentives were paid by the BPA in 2001 through early 2003.

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

LIGHTING DESIGN LAB PROGRAM

Description

Under development since 1987, the Lighting Design Lab (*LDL*) opened in December 1989, operated by Seattle City Light. Through 1997, the *LDL* was sponsored jointly with the Utility by the Bonneville Power Administration (BPA) and many other contributors. These included the Natural Resources Defense Council, Puget Sound Power and Light Company, Snohomish Public Utilities District No. 1, Tacoma City Light, the University of Washington, Pacific Power, the California Energy Commission, the Northwest Conservation Act Coalition, the Washington State Energy Office, the Northwest Power Planning Council, Idaho Power, Washington Water Power, the United States Department of Energy, and British Columbia Hydro (Canada),

Effective January 1998, the Northwest Energy Efficiency Alliance (NEEA) replaced the BPA as the primary regional funding source for the Lighting Design Lab; the current NEEA contract will expire on December 31, 2008. During 2001-2006, NEEA supplied 70% on average of total *LDL* funding. Between 1989 and 1997, about 57% of funding each year was supplied by the BPA. Besides Seattle City Light and NEEA/BPA, BC Hydro and the Alaska Energy Authority are currently *LDL* sponsors.

The overall *LDL* mission from the start has been to bring about a long-term change in the regional lighting marketplace. The objectives of the Lighting Design Lab are to:

- Promote state-of-the-art daylighting, electric lighting systems, and design approaches, in both the new construction and retrofit markets;
- Provide energy-efficient lighting options to a wide variety of lighting professionals in the commercial sector;
- Conduct tours, consultations, classes, demonstrations, mock-ups, and other educational activities on state-of-the-art energy-efficient lighting strategies and design; and
- Promote implementation of energy-efficient lighting strategies and design.

A mock-up facility allows testing of various lighting strategies in a variety of settings. Since its inception, the *LDL* has operated a daylight lab and computer modeling facilities. Beginning in 2004, faculty and students from the University of Washington School of Architecture have been staffing the daylighting lab.

As a consequence of the NEEA contract, there is more emphasis on increasing regional outreach and penetration in less populated parts of the region. The expanded objectives of the *LDL* (in the terms of the NEEA contract) are to:

LIGHTING DESIGN LAB PROGRAM

- Support regional market transformation activities through education, information, and demonstration;
- Increase clients served outside the Puget Sound area;
- Increase lighting specifier group contacts on the *LDL* mailing list;
- Collaborate with other regional marketing campaigns in support of regional utilities; and
- Promote visits to the Lighting Design Lab by first-time users around the region, including designers and specifiers.

In 2006, the Lighting Design Lab began to provide efficient lighting support to the new Integrated Energy Design (IED) Lab, which is co-located with it in Seattle. There are five other Integrated Energy Design Labs located in Eugene and Portland, Oregon; Spokane, Washington; and Bozeman and Boise, Idaho. The new IED Lab is part of NEEA's expanded efforts to provide educational assistance and technical support to commercial building design professionals. The goal is to increase the adoption of integrated design and other high performance building practices in new construction and major retrofit projects.

Eligible Population

The LDL is directed toward architects, engineers, lighting designers, utility analysts, facility managers, and contractors in the Washington, Oregon, Idaho, Montana and British Columbia.

Lifetime of Conservation Measures Installed: Not applicable

Electricity Savings

The Lighting Design Lab's central purpose is to provide lighting specifiers with technical assistance and demonstrations of energy efficient lighting and daylighting strategies. It is a regional service for utility programs. From 1991-2003 a series of process evaluations and satisfaction studies have been conducted for the *LDL*. (1)

Attempting to estimate energy savings resulting solely from the Lab's consultations and other services is not feasible due multiple factors: the informational and educational emphasis of the Lab, inaccessible billing data from utilities outside of the City Light service area, the lack of on-site inspections to verify the installation of lighting measures recommended by *LDL* consultants, and the difficulty of separating *LDL* energy-savings impacts from the effect of lighting measures and rebates recommended by utility program staff. (2) The *LDL* has measured service impacts, however, and found significant market transformation effects. (3)

LIGHTING DESIGN LAB PROGRAM

PARTICIPATION IN THE LIGHTING DESIGN LAB PROGRAM (4)

Year	Consul-tation Events	Mock-up Events	Class Attendees	Meeting Attendees	Tour Attendees	Walk-ins & Library Users	Other Users	Total
1989	35	1	320	358	497	49	324	1,584
1990	347	11	1,164	1,477	1,691	230	994	5,914
1991	143	27	1,415	2,092	1,273	150	897	5,997
1992	169	15	2,554	2,640	1,323	155	809	7,665
1993	576	19	2,341	2,582	798	261	643	7,220
1994	344	32	2,243	1,892	756	131	840	6,238
1995	308	38	3,091	2,238	742	277	976	7,670
1996	294	18	2,151	1,434	865	286	594	5,642
1997	301	21	1,918	1,305	824	297	699	5,363
1998	291	30	2,566	990	597	330	563	5,387
1999	291	36	3,040	1,092	630	251	1,062	6,402
2000	420	25	3,905	931	431	181	376	6,269
2001	403	20	4,150	459	514	235	256	6,037
2002	428	24	3,136	560	546	104	459	5,257
2003	331	26	1,768	653	631	170	384	3,963
2004	251	5	2,234	302	238	43	102	3,175
2005	253	20	3,253	1,099	567	62	304	5,528
2006	223	19	2,461	920	533	60	131	4,345
TOTAL	**5,376**	**387**	**43,710**	**23,024**	**13,456**	**3,272**	**10,431**	**99,656**

Program Expenditures

The total costs of operating the Lighting Design Lab since 1987 have been $11,860,174. This includes all 1989-1997 BPA funds (28%), 1998-2005 NEEA funds (41%), 1989-1998 and 2001-2002 Puget Sound Energy contributions (1%), plus *LDL* service fees received during 2001-2006 (2%). After these regional reimbursements, net Seattle City Light costs during 1987-2006 were 29%. The 2000 Puget Sound Energy contribution plus 1989-2000 contributions from other agencies and organizations, amounting to $1,052,704 (10%), were deposited directly with the Seattle City Treasurer. With this offset against the Seattle City Light portion of *LDL* operating expenses, the City of Seattle overall net contribution drops to 19% of operating costs. (7)

Before receipt of reimbursement funds from BPA and NEEA, Seattle City Light expended $11,010,782 for *LDL* operations during 1987-2006. Start-up costs in 1987-1989 were $726,873, while ongoing operations from 1990 through 1997 averaged $513,929 per year. Average operating costs during 1998-2006 have risen to $685,831, with increasing levels of service.

LIGHTING DESIGN LAB PROGRAM

Through 2000, about half of NEEA support was invoiced and received directly by Seattle City Light, the other half being supplied in the form of contract services. In 2001-2006 all NEEA support was channeled directly to the utility. Support received from NEEA during 1998-2005 totaled $4,866, 412 and averaged $540,712 annually, about 49% higher than the prior BPA average of $363,108 per year during 1989-1997. This higher level of support reflects increased services that the *LDL* is now supplying to the region via expanded staffing, travel, outreach activities and seminars.

SEATTLE CITY LIGHT PROGRAM EXPENDITURES FOR THE LIGHTING DESIGN LAB PROGRAM (5)

Year	*Expenditures*
1987	$ 68,217
1988	55,257
1989	603,399
1990	409,008
1991	491,943
1992	464,397
1993	599,282
1994	498,677
1995	544,825
1996	525,155
1997	578,142
1998	431,164
1999	470,439
2000	455,502
2001	845,921
2002	896,090
2003	875,144
2004	844,188
2005	685,105
2006	668,927
TOTAL	**$11,010,782**

LIGHTING DESIGN LAB PROGRAM

BPA FUNDING/REIMBURSEMENT TO SEATTLE CITY LIGHT FOR THE LIGHTING DESIGN LAB PROGRAM (6)

Year	*Funding*
1987	$ 0
1988	0
1989	503,158
1990	284,053
1991	325,182
1992	331,919
1993	436,990
1994	350,746
1995	369,507
1996	315,963
1997	350,458
1998-2006	0
TOTAL	**$3,267,976**

CONTRIBUTIONS FROM OTHER AGENCIES FOR THE LIGHTING DESIGN LAB PROGRAM (7)

Year	*Operational Funds & Services*	*Indirect Donations*	*Total Contributions*
1987	$ 0	$ 0	$ 0
1988	0	0	0
1989	10,000	235,915	245,915
1990	10,000	119,839	129,839
1991	10,000	149,061	159,061
1992	10,000	78,246	88,246
1993	10,000	74,320	84,320
1994	10,000	51,770	61,770
1995	10,000	105,196	115,196
1996	10,000	(-98)	9,902
1997	10,000	72,280	82,280
1998	509,131	38,382	547,513
1999	627,313	34,338	661,650
2000	362,149	93,454	455,601
2001	560,993	47,291	608,284
2002	655,552	57,931	713,483
2003	655,232	34,827	690,059
2004	574,675	16,389	591,064
2005	488,238	15,845	504,083
2006	443,129	66,218	509,347
TOTAL	**$4,966,412**	**$1,291,204**	**$6,257,616**

LIGHTING DESIGN LAB PROGRAM

Notes

1. Seattle City Light conducted two process evaluations of the *LDL*: *Evaluation of the Lighting Design Lab's Consultation Program* (December 1991) and *Evaluation of the Lighting Design Lab's Consultation and Mock-Up Services* (July 1994). The Northwest Energy Efficiency Alliance has sponsored four additional evaluations: *Start-up Process Evaluation Report: Lighting Design Lab* (April 1998), *Market Progress Evaluation Report–Lighting Design Lab* (April 1999), *Special Report: Organizational Structure Review and Recommendations–Lighting Design Lab* (June 2000), *Market Progress Evaluation Report–Lighting Design Lab* (September 2000), and *Market Progress Evaluation Report–Lighting Design Lab* (April 2003).

   A series of 1991-1993 reports assessed user satisfaction with *LDL* services. These reports include *User's Perceptions of Lighting Design Lab Services* (February 1991), *Lighting Design Lab Monthly Evaluation Report* (issued monthly from October through December 1991); *Lighting Design Lab Quarterly Status Report: First Quarter, 1992* (June 1992), *Lighting Design Lab Quarterly Status Report: Second Quarter, 1992* (July 1992), and *Lighting Design Lab 1992 Annual Status Report* (February 1993).

   Satisfaction with the Lab's services was at a high level in the 1991 survey and generally increased in the 1993 evaluation. Average ratings for consultations and mock-ups improved in the 1993 survey for six of seven items measuring satisfaction with the consultation services received. In both the 1991 and 1993 evaluations, high percentages of respondents expected to use the Lab for future lighting projects (92% and 91%, respectively).

2. The 1994 process evaluation revealed by self-report that over three-quarters of both 1991 and 1993 *LDL* participants had installed or plan to install one or more of the energy efficient lighting recommendations resulting from their consultation or mock-up. A small subsample of survey participants reported a 49% decrease in the average <u>estimated</u> post-period lighting-related energy consumption in watts per square foot, declining from 2.59 to 1.32 watts per square foot. However, this estimate is derived from estimates of the *LDL's* Lighting Specialists or from client-supplied estimates. As a consequence, the comparison of pre and post electricity consumption presented in this report should be viewed only as an indication of the actual change in electricity use resulting from the consultations and mock-up services of the Lab.

3. The 1999 process evaluation found that the *LDL* is responsible for significant changes in market related behavior of users, including specifying and using more efficient lamps and ballasts, attention to lighting placement and wattage, and doing more analysis to determine the quantity and quality of illumination. Of users, 27% claim that their change in behavior is almost entirely due to the Lab, and 47% report that they have recommended the Lab to others. A third say that they have used technical data from the Lab to support a lighting decision, and about half of those who have changed their behavior or practice in response to their Lab experiences, say they will continue the behavior in the future. The changes in practice have influenced at least one building for 87% of users, and 20% report that their changes in their behavior have influenced 21 or more buildings.

LIGHTING DESIGN LAB PROGRAM

In 1999 an estimated 10-20% of architects, lighting designers, interior designers, building owners and managers, and electrical engineers in the *LDL* service area (Washington, Oregon, Idaho, and Montana) have used one or more Lab services. A primary reason why nonparticipants did not use the Lab was a lack of awareness (37%). Among those who were aware of the Lab but had not used the Lab, more that half said that distance was a major obstacle and another 21% said that it was too time consuming. Although the majority of Lab users use the Internet for work-related information, only 13% had visited the Lab's Northwest Lighting On-line site.

4. Participation data were acquired from visitor sign-in sheets and other LDL records on the number of tours, classes, consultations, and mock-up facility demonstrations given each month. Activity for all categories (except consultations and mock-ups) reflects the number of individuals participating, not the number of separate events. This difference in the unit of measurement for LDL program activities should be kept in mind in interpreting the total column for this table. Since 1991, class counts include participation on LDL on-site and off-site classes, as well as on-site classes held by other organizations. The LDL stopped recording walk-ins in 1994.

5. Financial information for 1987 and 1988 was obtained from Seattle City Light's Management Information System Cost Ledger reports for Work Order No. 70537 (-01).

   Seattle City Light and Bonneville Power Administration financial information for 1989-1999 was obtained from the Seattle Financial Management System and Summit System for Activity/Work Order No. 70537. Information on financial contributions from other participating utilities for 1989-1999 was obtained from the Lighting Design Lab's "Donation Summary" and "Income Log" reports. Contributions from other utilities and sponsoring groups do not appear in the SFMS. Seattle City Light financial information for 2000-2006 Summit System for Activity/Work Order No. 70537 (-01,-02,-03). Information on financial contributions from other participating utilities for 2000-2005 was obtained from the Lighting Design Lab's "Income Log" report. Contributions from other participating utilities during 2003-2005 were taken from the Lab's "Combined Adjusted Income" and "Check Receipt Log" reports.

   Administrative costs for 1993-2005 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 *LDL* Program was $41 (assessed on shop crew labor). No A&G overhead was charged in 1994 and 1995.

6. From 1989 through 1997, the Bonneville Power Administration (BPA) was invoiced quarterly by Seattle City Light for funding to support the Lighting Design Lab. These monies were accounted as revenues to Seattle City Light's Lighting Design Lab Program. BPA direct funding ceased after 1997 when the Northwest Energy Efficiency Alliance (NEEA) assumed major funding support on behalf of the Pacific Northwest region. However, about 57% of NEEA's budget in 1998-1999 was supplied by the BPA.

LIGHTING DESIGN LAB PROGRAM

7. The following table details sources for the Lighting Design Lab's 1987-2005 total operating costs.

Year	Net SCL Expended	BPA Funded	NEEA / Electric League	Puget Sound Energy	Funding from Other Sources	Total LDL Operating Costs
1987	$ 68,217					$ 68,217
1988	55,257					55,257
1989	(135,674)	503,158		10,000	235,915	613,399
1990	5,116	284,053		10,000	119,839	419,008
1991	17,700	325,182		10,000	149,061	501,943
1992	54,232	331,919		10,000	78,246	474,397
1993	87,972	436,990		10,000	74,320	609,282
1994	96,161	350,746		10,000	51,770	508,677
1995	70,122	369,507		10,000	105,196	554,825
1996	209,290	315,963		10,000	(98)	535,155
1997	155,404	350,458		10,000	72,280	588,142
1998	163,166		499,131	10,000	38,382	710,679
1999	153,048		627,313		34,338	814,698
2000	135,516		362,149	30,000	63,455	591,120
2001	237,638		560,993	20,000	27,291	845,921
2002	182,607		655,552	20,000	37,931	896,090
2003	185,085		655,232	0	34,827	875,144
2004	253,124		574,675	0	16,389	844,188
2005	181,022		488,238	0	15,845	685,105
2006	159,580		443,129	40,000	26,218	668,927
Total	$2,334,583	$3,267,976	$4,866,412	$210,000	$1,181,205	$11,860,176

Like BPA funding in past years, funds from the NEEA also offset Seattle City Light expenditures and are accounted as revenues to the program. These monies are reported here as operational funds, along with the value of operational services supplied by NEEA under contracts with the Northwest Energy Efficiency Council (NEEC, 1998-2003) and the Electric League (since September 1999).

From 1989 through 1998, Puget Sound Energy supplied $10,000 of annual support in the form of an holding or draw account; however, no funds of this kind were received in 1999. In 2000, Puget Sound Energy donated $30,000 to the *LDL,* and provided another $20,000 in each year 2001 and 2002 (however, no donation was made in 2003-2005). The total expenditures reported for 2000 through 2002 have been adjusted by these amounts. In November of 2006, Puget Sound Energy donated $40,000 to apply toward 2007 LDL operating costs. Total cash expenditures for the *LDL* were $485,502 in 2000, $845,921 in 2001, and $896,090 in 2002, $875,144 in 2003, $844,188 in 2004, $685,105 in 2005, and $668,927 in 2006.

Other utilities and agencies support the Lighting Design Lab by making donations directly to the City of Seattle, both monetary and of products. For example, in 2004 the Alaska Energy Authority made a $2,000 donation. The *LDL* also received $13,889 in class and use fees during 2004, and a $500 honorarium from the University of California. Apart from NEEA funding, donated monies in 1987-2000 were deposited by the City Treasurer in the general fund, and were not accounted as revenues to the *LDL* program. These donations did not contribute toward *LDL* operating expenses. In 2001-2006, funds and donations from these other sources became available to the Lighting Design Lab through a separate City Light expense account.

$MART BUSINESS PROGRAM

Description

The $mart Business Program began operating under this name in January 1999. It consolidates two prior program components: the $mart Business Lighting neighborhood program (1995-1998) and the Small Commercial Rebate citywide program (1997-1998). The consolidated program provides financial incentives to small-commercial customers for replacing inefficient lighting with approved energy efficient lighting. Rebates range from $30 to $70 per fixture.

The former *$mart Business Lighting Program* offered financial incentive contracts to small commercial buildings in selected neighborhoods for installing energy efficient lighting. These customers were on the "small general service" Rate Schedule 31. Through their participation they received an incentive equal to 80% of the total measure installation cost. Lighting eligible for installation under the program included T-8 luminaires with electronic ballasts, compact fluorescent luminaires, high pressure sodium fixtures, metal halide fixtures, light-emitting diode (LED) exit signs, and lighting controls.

In 1995-1998 the $mart Business Lighting Program offered the financial incentives to customers in areas targeted by the Neighborhood Power programs. 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.

In the fall of 1997, Seattle City Light began offering a *Small Commercial Rebate Program* for customers who were outside the targeted $mart Business neighborhoods. In this program component, customers on Rate Schedule 31 were paid a rebate for replacing existing lamps or fixtures with efficient ones. Beginning in 1999, these citywide as well as neighborhood rebate services were offered through the combined $mart Business Program.

The media coverage of the West Coast energy crisis during 2001 increased interest in the $mart Business program, and new contractors were recruited to meet demand. These recruitment efforts have been particularly successful at increasing involvement from ethnic minority lighting contractors. Investigation of small business offerings of other utilities found that some are using

$MART BUSINESS PROGRAM

the $mart Business model as the foundation of their efforts. During 2001 and 2002, program staff continued to accompany the Mayor and other City officials on neighborhood tours organized by the Department of Neighborhoods, generating small commercial leads for $mart Business. Two pilot installations in 2001 were made of walk-in cooler fan controllers in order to assess the viability of including this measure in the program in future. It appears that this measure is best implemented at the time of equipment upgrade, as it presented difficulties when applied to older coolers that had not been optimized.

Eligible Population

Small commercial customers who are on Small General Service (SMC, SMS) rates, formerly Rate Schedule 31, and are not part of a chain, franchise, or campus system, are eligible for the program. In 1998 there were 28,717 "small general service accounts" in the City Light service area. (1)

Lifetime of Conservation Measures Installed

The lifetime of the measures ranges from 4 to 12 years, with the average lifetime being 11 years.

Electricity Savings

This section contains two tables. The first depicts projects contracted (or authorized per rebate coupon) by City Light during the calendar year. This table shows the potential energy savings that will be realized when the projects are completed. 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.

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Energy savings are presented for the 2,227 projects contracted (or rebate-coupon authorized) in the 1995-2006 period. Based on an evaluation of the $mart Business Pilot Program, savings projected by engineering calculations were reduced by 3% for the projects. As of 2006 the savings expected from these contracted projects total 25,510 megawatt-hours (MWh).

Energy savings are estimated for 2,215 program participants having completed projects in 1995 through 2006. As with contracted projects, the projected savings were reduced by 3% for the projects. With this adjustment, the average savings per building for 1995 through 2006 projects were 11,473 kilowatt-hours (kWh).

In 2006 the energy savings from cumulative (1995-2006) completed projects were 25,413 megawatt-hours (MWh). The load reduction in 2006 due to this program was 2.901 average megawatts (aMW).

$MART BUSINESS PROGRAM

ELECTRICITY SAVINGS FOR THE SMART BUSINESS PROGRAMS
— Contracted Projects —

Year	Contracted Project Type	Projects by Year (2)	Cumula-tive Projects	Sq. Ft. of Buildings	kWh Savings per Project	MWh Savings in Year (3)	Avg. MW Load Reduction in Year
Annual Customers by Service:							
1995	$mart Business	137	137	924,887	11,460	1,570	0.179
1996	$mart Business	25	162	225,401	19,042	2,046	0.234
1997	$mart Business	45	207	482,775	17,398	2,829	0.323
	Small Commercial	28	28	125,877	12,082	338	0.039
1998	$mart Business	40	247	287,379	15,194	3,437	0.392
	Small Commercial	96	124	569,629	11,427	1,435	0.164
1999	Neighborhood	65	312	436,677	10,332	4,108	0.469
	Citywide	140	264	683,928	11,154	2,997	0.342
2000	Neighborhood	41	353	127,695	9,022	4,478	0.511
	Citywide	111	375	388,126	11,308	4,252	0.485
2001	Neighborhood	104	457	238,361	7,397	5,247	0.599
	Citywide	126	501	615,524	12,587	5,838	0.666
2002	Neighborhood	75	532	241,750	8,990	5,922	0.676
	Citywide	87	588	535,991	11,714	6,857	0.783
2003	Neighborhood	80	612	241,700	9,146	6,653	0.760
	Citywide	153	741	646,114	10,130	8,407	0.960
2004	Neighborhood	88	700	213,200	7,093	7,278	0.831
	Citywide	215	956	1,033,472	10,337	10,629	1.213
2005	Neighborhood	142	842	223,200	6,126	8,147	0.930
	Citywide	220	1,176	544,114	14,176	13,748	1.569
2006	Neighborhood	84	926	238,910	7,148	8,748	0.999
	Citywide	125	1,301	1,157,804	24,110	16,762	1.913
Total Program:							
1995	All Types	137	137	924,887	—	1,570	0.179
1996	All Types	25	162	225,401	—	2,046	0.234
1997	All Types	73	235	608,652	—	3,167	0.362
1998	All Types	136	371	857,008	—	4,872	0.556
1999	All Types	205	576	1,120,605	—	7,105	0.811
2000	All Types	152	728	515,821	—	8,730	0.997
2001	All Types	230	958	853,885	—	11,085	1.265
2002	All Types	162	1,120	777,741	—	12,779	1.459
2003	All Types	233	1,353	887,814	—	15,060	1.719
2004	All Types	303	1,656	1,246,672	—	17,907	2.044
2005	All Types	362	2,018	767,314	—	21,896	2.500
2006	All Types	209	2,227	1,396,714	—	25,510	2.912
Potential Electricity Savings Since Start of Program:						**131,728**	**MWh**

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ELECTRICITY SAVINGS FOR THE SMART BUSINESS PROGRAMS
— Completed Projects —

Year	Completed Project Type	Projects by Year (2)	Cumula-tive Projects	Sq. Ft. of Buildings	kWh Savings per Project	MWh Savings in Year (4)	Avg. MW Load Reduction in Year
Annual Customers by Service:							
1995	$mart Business	137	137	924,887	11,460	1,570	0.179
1996	$mart Business	0	137	—	0	1,570	0.179
1997	$mart Business	48	185	431,634	16,350	2,355	0.269
	Small Commercial	28	28	130,077	12,082	338	0.039
1998	$mart Business	46	231	277,038	17,534	3,161	0.361
	Small Commercial	85	113	488,309	9,542	1,149	0.131
1999	Neighborhood	39	270	102,101	8,512	3,493	0.399
	Citywide	147	260	756,128	12,349	2,965	0.338
2000	Neighborhood	58	328	340,013	10,827	4,121	0.470
	Citywide	102	362	361,366	10,562	4,042	0.461
2001	Neighborhood	104	432	320,283	7,355	4,886	0.558
	Citywide	109	471	466,528	13,890	5,556	0.634
2002	Neighborhood	73	505	231,086	7,516	5,435	0.620
	Citywide	105	576	642,560	10,725	6,682	0.763
2003	Neighborhood	86	591	274,200	10,503	6,338	0.724
	Citywide	127	703	562,651	10,645	8,034	0.917
2004	Neighborhood	93	684	231,700	7,141	7,002	0.799
	Citywide	256	959	1,205,622	10,349	10,683	1.220
2005	Neighborhood	136	820	274,200	6,292	7,858	0.897
	Citywide	227	1,186	553,942	14,351	13,941	1.591
2006	Neighborhood	84	904	238,910	7,148	8,458	0.966
	Citywide	125	1,311	1,157,804	24,110	25,413	1.935
Total Program:							
1995	All Types	137	137	924,887	—	1,570	0.179
1996	All Types	0	137	—	—	1,570	0.179
1997	All Types	76	213	561,711	—	2,693	0.307
1998	All Types	131	344	765,347	—	4,311	0.492
1999	All Types	186	530	858,229	—	6,458	0.737
2000	All Types	160	690	701,379	—	8,163	0.932
2001	All Types	213	903	786,811	—	10,442	1.192
2002	All Types	178	1,081	882,355	—	12,117	1.383
2003	All Types	213	1,294	836,851	—	14,372	1.641
2004	All Types	349	1,643	1,437,322	—	17,686	2.019
2005	All Types	363	2,006	828,142	—	21,799	2.488
2006	All Types	209	2,215	1,396,714	—	25,413	2.901
Electricity Savings Since Start of Program:						**126,594**	**MWh**

$MART BUSINESS PROGRAM

Program Expenditure

Administrative expenditures and participant payments made in the year totaled $8,266,412 from 1995 through 2006. In 2006 these program costs were $1,006,619. This represents the cost to the utility, and not the total resource cost. There has been no program-specific Bonneville Power Administration funding or involvement in the Smart Business Rebate Program.

PROGRAM EXPENDITURES FOR THE SMART BUSINESS PROGRAMS (5)

			Incentive Payments to Participants			
Year	***Project Type***	***Admini-stration***	***Contracted Projects*** (6)	***All Payments for Projects Completed in Year*** (6)	***Actual Expenditures in Year***	***Total Expenditures***
1995	$mart Business	$ 138,664	$ 340,357	$ 340,357	$ 340,357	$ 479,021
1996	$mart Business	170,882	99,939	0	20,225	191,107
1997	$mart Business	179,334	157,631	165,837	218,930	398,264
	Small Commercial	28,710	74,405	74,405	74,405	103,115
	Annual Total	208,044	232,036	240,242	293,335	501,379
1998	$mart Business	135,518	104,330	162,281	162,281	297,799
	Small Commercial	87,821	216,790	174,680	190,120	277,941
	Annual Total	223,339	321,120	336,961	352,401	575,740
1999	Annual Total	250,155	418,132	406,940	415,699	665,854
2000	Annual Total	231,515	258,146	287,570	284,600	516,114
2001	Annual Total	244,887	414,919	383,634	385,723	630,610
2002	Annual Total	251,880	313,688	330,141	320,479	572,360
2003	Annual Total	314,440	446,833	415,736	425,038	739,478
2004	Annual Total	387,854	580,606	677,456	680,876	1,068,730
2005	Annual Total	436,947	802,971	885,513	882,453	1,319,400
2006	Annual Total	335,649	670,970	670,970	670,970	1,006,619
TOTAL PROGRAM		**$3,194,256**	**$4,899,687**	**$4,975,520**	**$5,072,156**	**$8,266,412**

$MART BUSINESS PROGRAM

Notes

1. The eligible population figures are from the Electric Sales database, maintained by the Rates Section in Seattle City Light's Finance Division.

2. Data on the number of 1995-1998 contract-executed and completed projects were obtained from $mart Business Lighting records maintained by the Contracts Unit, Energy Management Services/Conservation Resources Division. Contracted projects are identified by coupon year. Data on the number of 1998-2005 rebate-executed and completed projects were obtained from the Conservation Tracking System, Energy Management Tracking System, and Conservation Acquisition Tracking System (CATS) databases maintained by the Community Conservation Section.

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

4. First year energy savings from total participants in the Smart Business Program completing work in each year were: 1,570 MWh (1995); 0 MWh (1996); 1,123 MWh (1997); 1,618 MWh (1998); 2,147 MWh (1999); 1,705 MWh (2000); 2,279 MWh (2001); 1,675 MWh (2002); 2,255 MWh (2003); 3,313 MWh (2004); 4,113 MWh (2005); and 3,614 MWh (2006).

5. For the Smart Business Programs, administrative costs were obtained from Seattle Financial Management System and Summit System for Activity/Work Order Nos. 70502 ($mart Business Lighting—in Neighborhood Power areas) and 70586 (Small Commercial Rebates—Citywide and in Neighborhood Power areas).

   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.

   Information in the Evaluation Unit database on annual incentive payments to participants was obtained from files maintained by the Contracts Unit and the Energy Management Services/Conservation Resources Division, Community Conservation Section. Actual incentive payments in the year were confirmed by Seattle Financial Management System reports.

6. Incentive payments for <u>contracted</u> projects represent the projected cost of payments for participating projects under contract or rebate agreement with Seattle City Light. The costs identified as "all payments for projects <u>completed</u> in year" represent all customer incentives for projects completing installation during the year. The amounts of these incentive payments to customers were obtained from the database maintained by the Evaluation Unit. The "actual expenditures in year" represent monies spent in the calendar year for projects receiving incentives during the year. Total expenditures are reported here as the sum of administrative costs plus actual incentive payments in the year.

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Incentive payments reflect the total cost of measure installation excluding costs incurred by the customer in excess of program allowances. The customer pays total installed costs directly to the contractor. Presented below are estimates of the annual total customer installed costs in nominal dollars by customers as authorized from 1995-2006:

Year	Annual Installed Cost	Cumulative Installed Cost
1995	$85,090	$85,090
1996	5,060	90,150
1997	73,300	163,450
1998	352,700	516,150
1999	359,419	875,569
2000	189,619	1,065,188
2001	300,644	1,365,832
2002	271,878	1,637,710
2003	342,771	1,980,481
2004	415,824	2,396,305
2005	537,426	2,933,728
2006	679,079	3,612,807

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

Description

The Energy Code Program (*ECP*) provides funding for inspection-based enforcement of the Seattle Energy Code. The city energy code provides savings equivalent to the savings that would be produced if the regional Model Conservation Standards (MCS) were in place in Seattle. The Energy Code Program was preceded by the Early Adopter Program (*EAP*, November 1986 to March 1989), also funded by the Bonneville Power Administration.

The Sustainable Design Programs are comprised of two related initiatives, the LEED Incentive Program and the Built Green Incentive Programs. Leadership in Energy and Environmental Design (LEED™) is a national rating and certification program organized by the U.S. Green Building Council for the siting, design, construction, and operation of new and renovated buildings. The four categories for LEED certification include platinum (highest), gold, silver, and LEED-rated. The LEED Silver Certificate, sought for Seattle municipal projects, requires specified levels of energy, water, and waste water efficiency, building commissioning, air quality, and daylighting and design excellence. Seattle's Built Green Incentive Program offers incentives to implement the Built Green™ program of the Master Builders Association of King and Snohomish Counties. The City Light Built Green Incentive Program serves private sector construction of new multifamily building projects that incorporate sustainable, "green" materials and methods early in the design process.

Seattle Energy Code Enforcement: Under the Energy Code Program, energy-related inspections are performed for commercial buildings receiving permits applied for after October 1986 and issued beginning April 1989. Final inspections were also provided for projects started under the Early Adopter Program. The affected end-use technologies include the efficiency of building envelopes, water heating, HVAC (heating, ventilating, and air conditioning) systems, lighting, and motors. In the past, the Energy Code Program provided payments for staff training, technical assistance, implementation and enforcement, which were passed from the BPA through local utilities to local building agencies. With the cessation of BPA funding, Seattle City Light now independently funds the Seattle Department of Planning and Development (formerly DCLU: Design, Construction and Land Use) for permit review, inspections, and consultation with prospective developers.

Before 1992, commercial buildings using prescriptive compliance methods were considered "simple," while the typically larger buildings (over 4,000 square feet) using component performance compliance methods were considered "complex." Major projects (commercial buildings over 50,000 square feet) were classified by compliance method as either as "major projects requirement" or "MPR prescriptive path." For a description of this aspect of the Seattle

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

Energy Code, see the *Energy Code Major Projects Requirement,* in SECTION IV: DISCONTINUED COMMERCIAL–INDUSTRIAL PROGRAMS.

City Light's Energy Code Program also applies to any electric resistance heat home receiving a building permit within the State of Washington beginning July 1991. Through June 1995, these permitted buildings having 2,000 square feet or less were eligible for a builder/consumer incentive payment, to offset the additional costs of installing conservation measures now required by state law. The incentive payment was $900 per single-family or duplex dwelling, and $390 per unit for multifamily dwellings (having three or more units). The purpose of the residential builder/consumer payment was to assist builders for a period of time with the additional cost of meeting code requirements, until costs of newer-technology measures came down and the market was transformed. Residential incentive payments ceased in 1996, at which time builders and developers became responsible for meeting the code without financial assistance. In 1992 the Bonneville Power Administration paid 75% of the incentive amount; the proportion increased to 100% from 1993 through 1996 (when BPA funding ceased).

LEED™ Incentives: Through the Sustainable Design Programs, City Light staff have been actively involved in the design of several municipal buildings, including the central Public Library, Seattle Justice Center and Civic Center, McCaw Performance Hall, and Key Tower. All of these projects will eventually receive City Light financial incentives for many of the installed energy conservation measures, for designs that meet the LEED Silver Certificate efficiency rating.

Sustainable building practices are becoming appealing to 'early adopters' among architects, engineers, product manufacturers, and public institutions. For the majority in the development community, however, these are not yet standard practice in Seattle and the Pacific Northwest. This is due to a variety of barriers such as perceived increased cost, lack of consumer demand, and lack of technical information.

Efforts to encourage sustainable building began with the Seattle Sustainable Building Action Plan, which was developed in 1997. This was followed by a series of three grants funded by the U.S. Department of Energy through Public Technology, Inc., and the Urban Consortium Energy Task Force. The first grant, for the Northwest Regional Sustainable Building Action Plan, was conducted by City Light in 1998 with the participation of over 200 development industry professionals from the Pacific Northwest states and British Columbia. Large parts of the Northwest Plan have been incorporated into the work plan of the U.S. Green Building Council, Cascadia Chapter. Through the second grant, Project Greenbuilt, in 1999 City Light worked with the cities of Issaquah, Bellingham and Seattle to help incorporate sustainable design into a fire station, a public works center, and the new City of Seattle Justice Center (a project registered with the U.S. Green Building Council's LEED scoring system). The third grant is the Sustainable Demand Project. (See the *Commercial–Industrial Highlights* in SECTION I: SUMMARY OF ACCOMPLISHMENTS AND EXPENDITURES.)

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

The initial sustainability efforts resulted in formation of the City of Seattle's multi-departmental Green Building Team. With adoption of the City's Sustainable Building Policy, the LEED Silver level was adopted as the desired standard for all new City-owned building projects, new or remodel, of over 5,000 square feet. By mid-2001 twelve City projects were registered with LEED™. City Light staff members continue to actively participate in the Green Building Team.

One of the lessons learned by the High Performance Building Team was that intervention with a team of City staff could be somewhat intimidating and did not necessarily create the intended atmosphere of collaboration. Further, some of the costs associated with LEED certification, particularly the costs of registering and documenting a project and the costs of energy modeling, still stood as significant barriers. In 2001, City Light and Seattle Public Utilities co-sponsored a new incentive program to overcome those problems, the LEED Incentive Program.

With $60,000 from City Light and $120,000 from Seattle Public Utilities, the LEED Incentive was offered in 2001-2005 as a pilot and an interim solution to encourage projects to pursue LEED certification. Responses to Council Resolution 30280 suggest a number of financial and non-financial incentives could motivate projects to pursue LEED certification. The LEED Incentive pays $15,000 for projects which commit to achieving the LEED-rated Certificate and $20,000 for the LEED Silver Certificate. The only requirement beyond committing to achieve one of these levels is that one early eco-charette be conducted with the entire owner and design team and with end users to identify sustainable building goals for the project. The City expects this strategy to provide a greater sense of project ownership. City staff act as resources to assist in the charette discussions. Incentive funds are paid up front, and are used for soft costs only—registration, documentation, energy modeling, and so forth—however the project chooses to use them. If projects fail to meet the certification level to which they are committed, the design funds must be returned to the City.

Built Green™ Incentives: The City of Seattle wants multifamily housing projects to follow its lead by incorporating more sustainable, 'green' materials and methods. Funded by Seattle City Light and Seattle Public Utilities, the Built Green Incentive Program provides financial assistance to building owners and developers of market-rate and affordable projects to incorporate meaningful and cost-effective sustainable building goals early in building programming and design decisions. The City participates as an active observer, to help develop other cost effective sustainable building services that the City can offer to the private sector.

To Built Green participants, the City of Seattle makes available, on an optional basis, technical assistance of the City's Green Building Team, the Lighting Design Lab, and the Resource Venture; facilitation assistance for up to two Building Design Charettes with Building Design Decision participants; and assistance in maximizing the value of City of Seattle incentives, including City Light's Built Smart Incentives and Public Utilities' Water Smart Technology Incentives and technical assistance.

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

Funding is limited; projects selected for funding are those that most aggressively comply with the criteria detailed in the Built Green Incentive pre-application form. Eligible are multifamily projects of five units or more that meet the criteria described in the Built Green™ Multifamily Checklist or Communities Checklist. The applicant must be a project owner or developer. Projects must be registered with the Built Green™ program of the Master Builders Association of King and Snohomish Counties.

Funding is provided based on achieving a minimum of 360 points on the Multifamily Checklist. The incentive is calculated as $5,000 plus $50 per dwelling unit (up to 100 units) or $10,000 plus $10 per unit (over 100 units), to a maximum of $15,000. If the project should exceed 450 points, incentive levels rise to $6,000 plus $65 per dwelling unit (up to 100 units) or $12,500 plus $10 per unit (over 100 units), to a maximum of $20,000. All projects must achieve a minimum of 180 points combined in the Site & Water and Energy Efficiency sections of the checklist. Three-fourths of funding (based on the 360 point level) is paid when an Built Green agreement signed, and the balance paid on successful project certification. If a project fails to the meet minimum performance achievement of 360 points, applicants must reimburse Seattle City light for all incentive funding received.

Eligible Population

The Energy Code Program serves electrically-heated new construction commercial and industrial buildings, commercial remodels and additions, as well as new construction single-family and multifamily buildings with electric space heat.

The Sustainable Design Programs serve the design and development community for new construction and renovation of commercial and multifamily residential buildings.

Lifetime of Conservation Measures Installed: Varies by measure.

Electricity Savings

Commercial permit-related activity counts are not available for 1998-1999. (1) Estimates of commercial energy savings in general are not available for the Seattle Energy Code or Model Conservation Standards, as compared to previous building practice. However, by inference from secondary sources, it is likely that during the period 1987-1994, Seattle may have saved an incremental 0.73 aMW each year, rising to 2.59 aMW per year in 1995-2000, and about

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

3.26 aMW per year in 2001-2005, from the energy codes. By 2006, the cumulative impact of commercial new construction energy codes has likely been around 41 aMW. (3)

The average single-family home or duplex receiving a residential builder/consumer payment is estimated to save about 2,000 kilowatt-hours (kWh) per unit. These savings represent 10% of the typical electrically-heated single-family home's energy use (19,580 kWh in 1990). Multifamily buildings (with three or more units) receiving a builder/consumer payment are estimated to save 650 kWh per unit. These savings represent 8% of the typical electrically-heated multifamily unit's energy use (8,347 kWh in 1990). These estimates are based on a study conducted by the Washington State Energy Office in 1993. Energy savings are reported only for projects receiving builder/consumer incentive payments.

Estimates of energy savings are not yet available for the Sustainable Design Programs. In 20069 the energy savings from cumulative (1992-1996) residential Energy Code participants were 29,436 megawatt-hours. The load reduction in 2006 due to residential Energy Code participants was 0.269 average megawatts (aMW).

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

PARTICIPATION IN THE ENERGY CODE PROGRAM
— Completed Projects —

Year	Building Type	Buildings by Year (2)	Residential Units by Year	kWh Savings per Project	MWh Savings in Year(3)*	Avg. MW Load Reduction in Year
Commercial Permits:						
1989	EAP Final Inspections	155	—			
	ECP Inspections	174	—			
1990	EAP Final Inspections	106	—			
	ECP Inspections	408	—			
1991	EAP Final Inspections	75	—			
	ECP Inspections	299	—			
1992	EAP Final Inspections	13	—			
	ECP Inspections	81	—			
1993	ECP Inspections	35	—			
1994	ECP Inspections	36	—			
1995	ECP Inspections	22	—			
1996	ECP Inspections	20	—			
1997	ECP Inspections	77	—			
1998-2006	ECP Inspections	0	—			
Total	Commercial Permits	1,501	—			
Residential Permits:						
1992	Single Family	3	3	2,000	6	0.001
1993	Single Family	16	16	2,000	38	0.004
	Multifamily	7	394	36,586	256	0.029
1994	Single Family	10	12	2,400	62	0.007
	Multifamily	29	1,485	33,284	1,221	0.139
1995	Single Family	46	58	2,522	178	0.020
	Multifamily	34	896	17,129	1,803	0.206
1996	Single Family	56	69	2,464	316	0.036
	Multifamily	19	358	12,247	2,036	0.232
1997	Single Family	0	0	0	316	0.036
	Multifamily	0	0	0	2,036	0.232
1998	Residential (combined)	0	0	0	2,352	0.268
1999	Residential	0	0	0	2,352	0.268
2000	Residential	0	0	0	2,352	0.268
2001	Residential	0	0	0	2,352	0.268
2002	Residential	0	0	0	2,352	0.268
2003	Residential	0	0	0	2,352	0.268
2004	Residential	0	0	0	2,352	0.268
2005	Residential	0	0	0	2,352	0.268
2006	Residential	0	0	0	2,352	0.268
Total	Residential Permits	220	3,291	—	—	—

(Cont'd.)

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

PARTICIPATION IN THE ENERGY CODE PROGRAM
— Completed Projects —

Year	Building Type	Buildings by Year (2)	Residential Units by Year	kWh Savings per Project	MWh Savings in Year (3)*	Avg. MW Load Reduction in Year
Total Energy Code Activity:						
1989	Annual Total	329	0	—	0	0.000
1990	Annual Total	514	0	—	0	0.000
1991	Annual Total	374	0	—	0	0.000
1992	Annual Total	97	3	—	6	0.001
1993	Annual Total	58	410	—	294	0.034
1994	Annual Total	75	1,497	—	1,283	0.147
1995	Annual Total	102	954	—	1,981	0.226
1996	Annual Total	95	427	—	2,352	0.269
1997	Annual Total	77	0	—	2,352	0.269
1998	Annual Total	0	0	—	2,352	0.269
1999	Annual Total	0	0	—	2,352	0.269
2000	Annual Total	0	0	—	2,352	0.269
2001	Annual Total	0	0	—	2,352	0.269
2002	Annual Total	0	0	—	2,352	0.269
2003	Annual Total	0	0	—	2,352	0.269
2004	Annual Total	0	0	—	2,352	0.269
2005	Annual Total	0	0	—	2,352	0.269
2006	Annual Total	0	0	—	2,352	0.269
Total	All Buildings	1,721	3,291	—	—	—
Electricity Savings Since Start of Program (Residential):					**29,436**	**MWh**

* Energy savings data not available for commercial building Energy Code projects.

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

PARTICIPATION IN THE SUSTAINABLE DESIGN PROGRAMS
— Completed Projects —

Year	Building Type	Buildings by Year (2)	Residential Units by Year	kWh Savings per Project	MWh Savings in Year (3) **	Avg. MW Load Reduction in Year
Annual Projects:						
2001	LEED Certified	0	—			
2002	LEED Certified	4	—			
	Built Green	1	—			
2003	LEED Certified	4	—			
	Built Green	0	—			
2004	LEED Certified	4	—			
	Built Green	3	—			
2005	LEED Certified	0	—			
	Built Green	0	—			
2006	LEED Certified	0	—			
	Built Green	0	—			
Total Sustainable Design Activity:						
2001	Annual Total	0	—			
2002	Annual Total	5	—			
2003	Annual Total	4	—			
2004	Annual Total	7	—			
2005	Annual Total	0				
2006	Annual Total	0				
Total	All Buildings	16	—			
Electricity Savings Since Start of Program					**—**	**MWh**

** Energy savings data not yet available for Sustainable Design projects.

Program Expenditures

Program expenditures for the Sustainable Design and Energy Code Programs combined totaled $7,488,394 from 1991 through 2006; in 2006 the program costs were $523,613. Administrative expenditures for the Sustainable Design Program in 2001-2006 totaled $394,024. Net City Light expenditures for the LEED and Built Green incentives amounted to $132,510 in 2001-2006, while Seattle Public Utilities funded another $120,000 in incentives.

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

Builder payments for residential projects amounting to $1,359,915 were passed through from the BPA in 1992 through 1996. During the period 1991-2006, City Light administrative costs for the Energy Code Program were $552,157, while support for staff positions at DCLU/DPD for energy code enforcement amounted to $5,047,714. These represent the costs to the utility and not the total resource cost.

PROGRAM EXPENDITURES FOR THE SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS
— Contracted Projects —

Year	Building Type	Seattle City Light Administration (4)	Dept. of Planning & Development Administration (4)	Total Administration	Incentives (5)	Total Expenditures
1989-1990	Annual Total	—	—	—	—	—
1991	Commercial	$6,213	$433,574	$439,787	$0	$439,787
	Residential	23,827	0	23,827	0	23,827
	Annual Total	30,040	433,574	463,614	0	463,614
1992	Commercial	10,959	193,788	204,747	0	204,747
	Residential	4,134	0	4,134	3,000	7,134
	Annual Total	15,093	193,788	208,881	3,000	211,881
1993	Commercial	15,280	213,907	229,187	0	229,187
	Residential	12,480	0	12,480	168,060	180,540
	Annual Total	27,760	213,907	241,667	168,060	409,727
1994	Commercial	12,458	263,332	275,790	0	275,790
	Residential	12,810	0	12,810	591,950	604,760
	Annual Total	25,268	263,332	288,600	591,950	880,550
1995	Commercial	4,765	281,551	286,316	0	286,316
	Residential	5,334	0	5,334	401,640	406,974
	Annual Total	10,099	281,551	291,650	401,640	693,290
1996	Commercial	6,885	292,270	299,155	0	299,155
	Residential	8,287	0	8,287	197,340	205,627
	Annual Total	15,172	292,270	307,442	197,340	504,782
1997	Commercial	7,470	286,544	294,014	0	294,014
	Residential	8,877	0	8,877	0	8,877
	Annual Total	16,347	286,544	302,891	0	302,891
1998	Commercial	28,943	279,654	308,597	0	308,597
	Residential	521	0	521	0	521
	Annual Total	29,464	279,654	309,119	0	309,119
1999	Commercial	4,267	315,042	319,309	0	319,309
	Residential	2,595	0	2,595	0	2,595
	Annual Total	6,862	315,042	321,903	0	321,903

(Cont'd.)

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

PROGRAM EXPENDITURES FOR THE SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS
— Contracted Projects —

(Continued)

Year	Building Type	Seattle City Light Admini-stration (4)	Dept. of Planning & Development Admini-stration (4)	Total Admini-stration	Incentives (5)	Total Expenditures
2000	Codes	77,338	327,204	404,542	0	404,542
	Design	0	0	0	0	0
	Annual Total	77,338	327,204	404,542	0	404,542
2001	Codes	204,628	339,461	544,089	0	544,089
	Design	6,000	0	6,000	15,000	21,000
	Annual Total	210,628	339,461	550,089	15,000	565,089
2002	Codes	10,168	382,311	392,479	0	392,479
	Design	35,603	0	35,603	37,820	73,423
	Annual Total	45,772	382,311	428,083	37,820	465,903
2003	Codes	26,886	375,807	402,693	0	402,693
	Design	76,890	0	76,890	(–15,000)	61,890
	Annual Total	103,776	375,807	479,583	(–15,000)	464,583
2004	Codes	32,989	366,888	399,876	0	399,876
	Design	74,494	0	74,494	56,017	130,512
	Annual Total	107,483	366,888	474,371	56,017	530,388
2005	Codes	11,903	340,428	352,331	0	352,331
	Design	72,613	0	72,613	11,575	84,188
	Annual Total	84,517	340,428	424,944	11,575	436,519
2006	Codes	12,140	355,953	368,092	0	368,092
	Design	128,424	0	128,424	27,098	155,521
	Annual Total	140,563	355,953	496,516	27,098	523,613
TOTAL PROGRAM		**$946,182**	**$5,047,714**	**$5,993,896**	**$1,494,500**	**$7,488,394**

BPA FUNDING FOR THE ENERGY CODE PROGRAMS

Year	Administration (6)	Incentives (7)	Total Funding
1989	$106,162	$0	$106,162
1990	130,236	0	130,236
1991	137,559	0	137,559
1992	27,050	2,025	29,075
1993	196,149	68,280	264,429
1994	143,183	676,080	819,263
1995	151,357	375,660	527,017
1996	82,757	237,870	320,627
1997-2006	0	0	0
Total	**$974,453**	**$1,359,915**	**$2,334,368**

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

CONTRIBUTIONS FROM OTHER AGENCIES FOR THE SUSTAINABLE DESIGN PROGRAMS (8)

Year	*Administration*	*Measures*	*Total Contributions*
2001	$ 0	$ 0	$ 0
2002	0	30,000	30,000
2003	0	50,000	50,000
2004	0	40,000	40,000
2005	0	0	0
2006	0	0	0
TOTAL	**$0**	**$120,000**	**$120,000**

Notes

7. The energy savings from commercial buildings affected by the *SEC* and *MCS* have not been quantified by Seattle City Light. These savings will be estimated in a future issue of the *Energy Conservation Accomplishments* report. Residential energy savings are estimated based on a code compliance study conducted by the Washington State Energy Office (*Getting to Code*, July 1993). Participation is reported separately for single-family (1-2 units) and multifamily (3+ units) buildings receiving residential builder/consumer payments in 1992-1996.

2. During 1992, three residential buildings received builder/consumer payments. Data on participation include all commercial inspections approved by City Light from second quarter 1989 through fourth quarter 1992. Commercial participation data for third quarter 1989 are not available. Commercial new building participants for 1993 and 1994 include the total number of commercial new building permits receiving final inspections in 1993-1994 (from "Monthly Permits Issued and Finaled" reports, Technical Code Unit, Code Development and Community Relations Division, DCLU). No 1993 data are available on the number of remodeled commercial buildings or those receiving additions.

Year	Commercial Permit Activity	New Simple	New Complex	Remodels/ Additions	Total Commercial
1989	ECP Energy Inspections	4	2	168	174
	EAP Final Inspections	14	8	133	155
	Annual Total	*18*	*10*	*301*	*329*
1990	ECP Energy Inspections	24	3	381	408
	EAP Final Inspections	18	10	78	106
	Annual Total	*42*	*13*	*459*	*514*
1991	ECP Energy Inspections	19	28	252	299
	EAP Final Inspections	3	0	72	75
	Annual Total	*22*	*28*	*324*	*374*
1992	ECP Energy Inspections	35	0	46	81
	EAP Final Inspections	2	0	11	13
	Annual Total	*37*	*0*	*57*	*94*

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

Total commercial *ECP* energy inspections numbered 35 in 1993, 36 in 1994, and 22 in 1995. There were no *ECP* inspections performed in 1996-2005; commercial building permits reported for this period reflect ongoing activities. Code development, staff training, and technical assistance activities continued in 1996-2005.

LEED-certified and Built Green buildings completions are documented by program records and payments made under Purchase Orders 6007 and 8755.

3. These estimates of conservation program energy savings exclude the impact of the Energy Code Programs in general (apart from specific early adopter promotions). Inference from load forecasting by the Northwest Energy and Conservation Council suggests that 3.5-8.6 million square feet per year of commercial space has been newly constructed or renovated/remodeled in Seattle each year since 1986 (averaging 7.0 million in recent years). The commercial code has been revised twice since 1986, when regional and City energy codes began to take effect—in 1994 and again in 2000—with Seattle supplements that 'go beyond' the Washington State Energy Code. During the period 1987-1994, Seattle likely saved an incremental 0.73 aMW each year, rising to 2.59 aMW per year in 1995-2000, and about 3.26 aMW per year in 2001-2005, from the energy codes. By 2006, the cumulative impact of commercial new construction energy codes has likely been around 40.99 aMW. Because these estimates are very preliminary, they are not included in the energy savings table for this program.

8. Administrative costs include monitoring of building permits, staff training, inspections, and technical assistance provided by the Department of Design, Construction and Land Use; plus Seattle City Light administrative expenses. Cost ledger data detailing program expenditures during 1989 and 1990 are not available. Therefore the total cost of the *ECP* is under-represented by this table.

   Cost data for 1991-2006 are from the Seattle Financial Management and Summit Systems for Activity/ Work Order Nos. 70597, 70535 and 70546. 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 *ECP* was $7,478, or 27% of total Seattle City Light programmatic administrative expenditures. By program component, the A&G charges were: Residential, $3,381 (27%); and Commercial–Industrial, $4,097 (27%). In 1994 the total A&G overhead charge was $4,829 (19%), which by program component was: Residential, $2,153 (17%); and Commercial–Industrial, $2,675 (21%). In 1995 the total A&G overhead charge was $3,704 (37%), which by program component was: Residential, $3,671 (69%); and Commercial–Industrial, $33 (1%).

5. Incentive costs are for *ECP* residential builder/consumer payment transactions. Originally these monies were accrued in the year when permits were issued; the current report table has been adjusted to reflect the year (1991-1996) in which builders/consumers received payments. Residential projects may take up to two years to move from permit to completion of construction. Annual accruals in 1991-1993 were: $268,362 (1991); $335,580 (1992); and $290,220 (1993). Annual encumbrances were established in 1994-1995 amounting to: $551,130 (1994); and $525,870 (1995). Of these total project set-asides, 69% resulted in residential building completions and final *ECP* inspections by the 1996 deadline.

6. BPA funding for the EAP during 1987-1988 totaled about $427,520. The administration total for April 1989 through December 1990 is derived from *ECP* quarterly financial status reports (269A) to the BPA.

SUSTAINABLE DESIGN & ENERGY CODE PROGRAMS

Funding through 1997 for *ECP* administrative activity totals $974,453. The BPA provided partial funding for *ECP* enforcement of the Seattle Energy Code, at the rate of $900 per single-family or duplex unit, and $390 per multifamily unit (in triplex or larger buildings). Residential totals for 1992-1996 are derived from transaction reports and Contracts Unit files of monthly invoices to the BPA under the Residential Conservation Agreement, Washington State Options, Builder Payments (Schedule E).

7. The BPA funded builder/consumer incentive payments at a 75% cost share in 1992. The reimbursement level rose to 100% in 1993. A total of 1,001,002 square feet of conditioned commercial space was approved as meeting the Energy Code in 1994. Qualifying commercial square footages are not currently available for other program years.

9. The following table details sources for the Sustainable Design Program's 2001-2005 total incentive costs. In 2002, Seattle City Light paid $67,820 in participant incentives and invoiced Seattle Public Utilities for $30,000 of shared incentive costs. In 2004, Seattle City Light paid $106,017 in participant incentives and invoiced Seattle Public Utilities for $40,000 of shared incentive costs. City Light also received a $10,000 refund in 2004 from a customer who had received a design incentive payment but cancelled the project.

Year	Gross SCL Expended	Refund from Customer	Total Paid Sustainable Design Incentives	SPU Invoiced	Net SCL Expended
2001	$ 15,000	$ 0	$ 15,000	$0	$ 15,000
2002	67,820	0	67,820	30,000	37,820
2003	50,000	(–15,000)	35,000	50,000	(– 15,000)
2004	106,017	(–10,000)	93,017	40,000	56,017
2005	11,575	0	11,575	0	11,575
2006	27,098	0	27,098	0	27,098
Total	277,510	(–25,000)	252,510	120,000	132,510