

City of Portland

1990 Energy Policy:  
Impacts and Achievements

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Portland Energy Office

Erik Sten, Commissioner  
Susan Anderson, Director  
1120 SW 5<sup>th</sup> Avenue, Room 706  
Portland, OR 97204  
503.823.7222  
[pdxenergy@ci.portland.or.us](mailto:pdxenergy@ci.portland.or.us)

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## Acronyms

AFV	Alternative fuel vehicle
BBB	Block-By-Block
BES	Bureau of Environmental Services
BEST	Businesses for an Environmentally Sustainable Tomorrow
BETC	Business Energy Tax Credit
BPA	Bonneville Power Administration
BHCD	Bureau of Housing and Community Development
CAFE	Corporate Average Fuel Efficiency
CBWTP	Columbia Boulevard Wastewater Treatment Plant
CEC	City Energy Challenge
CEP	Community Energy Project
CIP	Capital Improvement Plan
CNG	Compressed natural gas
CDC	Community development corporation
DOE	Department of Energy
EPA	Environmental Protection Agency
EV	Electric vehicle
HVAC	Heating, ventilation, and air conditioning
ODOE	Oregon Department of Energy (now called Oregon Office of Energy)
ODOT	Oregon Department of Transportation
OOE	Oregon Office of Energy (formerly Oregon Department of Energy)
OPDR	Office of Planning and Development Review
OPUC	Oregon Public Utility Commission
OSU	Oregon State University
PDC	Portland Development Commission
PGE	Portland General Electric
PP&R	Portland Parks and Recreation
PPS	Portland Public Schools
SELP	Small Scale Energy Loan Program
WSU	Washington State University

## INTRODUCTION

For two decades, Portland has been an international leader on community-based energy policy and programs.

The City first adopted an energy policy in 1979 in the wake of the OPEC oil embargo and shortages. At that time, it was the first local energy policy in the United States and included the establishment of an Energy Office and citizens' Energy Commission. Several dozen communities across the nation soon followed in Portland's footsteps.

The 1979 plan focused heavily on residential weatherization efforts and acquiring basic data about energy use in the City. Within five years of the Energy Policy's adoption, oil prices declined, popular interest in energy conservation diminished and the Northwest enjoyed an electricity surplus, further discouraging investments in energy efficiency.

By the late 1980's, energy issues began to reclaim the public's attention, as the Northwest, like many other regions of the country, was on the verge of needing new sources of electricity. At the same time, the concept of sustainability was beginning to gain currency, especially on the West Coast. Portland joined with San Jose and San Francisco in a project funded by the US Department of Energy to investigate how energy use and conservation are integrated with housing, transportation, economic development and overall environmental sustainability.

These developments prompted the City to take a fresh look at energy issues and develop a new plan based on principles of sustainability. Those principles include:

- supporting a stable, diverse and equitable economy;
- protecting the quality of the air, water, land and other natural resources;
- conserving native vegetation, fish, wildlife habitat and other ecosystems;
- minimizing human impacts on local and worldwide ecosystems; and
- promoting an inclusive society that recognizes the interdependence of natural and human communities.

The development of the 1990 Energy Policy involved extensive technical research and broad community involvement with housing and development groups, utilities, transportation and telecommunication experts, solid waste/recycling interests, trade organizations, neighborhood and environmental groups and other organizations—more than 50 public and private groups and associations in all. The policy was approved by the Energy Commission, Planning Commission and City Council and became a formal element of the City's comprehensive plan.

The 1990 Energy Policy included 89 objectives in goal areas including City operations, energy efficiency in residential, commercial and industrial facilities, transportation, telecommunications, energy supply, waste reduction and recycling.

The objectives in the plan range from very broad, such as supporting new energy codes for residential and commercial construction or promoting light rail, to the specific, such as weatherizing 20,000

apartment units or cutting City government energy use by at least 10 percent. The overall goal of the 1990 Energy Policy was to increase energy efficiency by 10 percent in all sectors of the city—residential, commercial, industrial and transportation.

To implement the Policy, the City focused first on its internal buildings and facilities with a program called the City Energy Challenge. A goal was established to cut City government energy bills by \$1 million within ten years. Council was anxious to capture the significant potential savings and also felt it was important to set an example for residents and businesses. The results of the program have been tremendous! By 1999, City energy bills were reduced by \$1.1 million annually for a total reduction of more than \$7 million.

The Energy Office engaged a city full of partners to implement the various energy efficiency and renewable resource programs outlined in the Energy Policy. Every effort involved several public and private entities. Over the decade, more than 30,000 households, businesses and non-profit organizations were engaged in local conservation efforts related to the Energy Policy.

City funds were leveraged significantly. For every dollar of City general fund invested, about \$2.50 was raised through state, federal, regional, and local agreements or private corporations. In addition, each general fund dollar resulted in more than \$10 of private investment for improvements in local housing and small businesses. More than 90 percent of the objectives in the plan have been achieved, including such highlights as:

- Technical and financial assistance programs and awards offered by the state, city and utilities for businesses and property owners resulting in energy efficiency improvements in more than 40 million square feet of commercial and institutional space.
- More than 22,000 apartment units weatherized through joint efforts among the City and local utilities.
- A nine percent reduction in per capita household energy use.
- New commercial and residential state energy codes.
- Increased bicycle and transit modal share.
- Enhanced commercial and residential recycling efforts.
- Installation of a waste methane fuel cell—the first in the western US.
- New partnerships to build and sell renewable green power resources.

### **Energy/Global Warming Connection**

In addition to the Energy Policy, in 1993 the City adopted a local global warming strategy to reduce carbon dioxide emissions. A growing popular concern and understanding of global warming issues led to a recognition that energy efficiency is not only a desirable local economic and environmental goal, but also of paramount importance in combating global warming.

The Carbon Dioxide Reduction Strategy augmented the 1990 Energy Policy in several areas that could result in significant increases in energy efficiency and renewable resources. The plan and progress report can be reviewed at [www.ci.portland.or.us/energy/carbondioxide.html](http://www.ci.portland.or.us/energy/carbondioxide.html).

### **A Look to the Future**

Ten years have passed since the 1990 Energy Policy was adopted. This report provides a comprehensive progress review and outlines the status of the 89 objectives in the Policy. As noted above, the news is substantially good.

This report, combined with the review of the 1993 Carbon Dioxide Reduction Strategy, provides the City with a base for developing a new plan. Much has changed in Portland since these two plans were adopted, including rapid population growth, a shift in the local and regional economy, large-scale changes in the regulatory environment for electric utilities and a major change in the way energy-efficiency efforts will be funded in the future.

The new plan will focus on both energy efficiency and global warming/climate change. Meetings will be held this summer with local businesses, residents, technical experts, environmental groups and community organizations to craft the 2010 Local Action Plan on Global Warming. The plan will feature actions related to energy efficiency, renewable resources, waste reduction and recycling, trees and vegetation, transportation and education.

The goal is to identify strategies that will reduce total carbon dioxide emissions 10 percent below 1990 levels by 2010.

This is an ambitious goal. The actions and strategies identified must be bold and comprehensive, yet achievable.

The plan will serve as a blueprint for actions related to reducing greenhouse gases. The energy-efficiency strategies will also serve as a framework for developing comprehensive energy- and resource-conservation programs that could be funded by a variety of private and public sources, including public benefit fees collected as a result of electric utility restructuring legislation.

Please review this progress report and contact the Portland Energy Office if you would like to be more involved in the development of the 2010 Local Action Plan on Global Warming.

**GOAL**

Promote a sustainable energy future by increasing energy efficiency in all sectors of the City by ten percent by the year 2000.

**2000 UPDATE**

Based on the latest data available, it appears that Portland will fall short of this goal: between 1990 and 1999, total per capita energy use decreased by 6.5 percent. By other measures of energy efficiency, however, the City will achieve its overall goal: during the same time period, energy consumption per dollar of wages fell by 11.9 percent. Moreover, in certain sectors, the City has nearly met its goal: between 1990 and 1999, for example, per capita residential energy use decreased by 8.9 percent.

**A. THE ROLE OF THE CITY**

The City Energy Office shall take a lead role in developing new energy-saving programs and assist other City bureaus with energy programs and policies. The Energy Office, in coordination with the Office of Intergovernmental Affairs, will seek funding from City, State, Federal, and regional agencies, utilities and others to implement, monitor and evaluate programs.

Other City bureaus also shall develop policies and programs that affect energy use. Many of the programs will be developed with assistance from the Energy Office and then integrated into the budgets and work plans of the appropriate City bureaus. The City will consider public and private benefits in the development of programs. The City Energy Commission shall be an advocate for energy efficiency and advise the City Council on energy policies and programs.

**Objectives: Two-Year Action Plan**

**Update**

<p>A.1. Compile and update basic data on the sources, uses and costs of energy within the City and related air quality, solid waste, and environmental data.</p>	<ul style="list-style-type: none"> <li>✍ The Energy Office has tracked energy use by sector both in the City of Portland and in the region from 1988 through 1999.</li> <li>✍ The Energy Office inventoried area carbon dioxide emissions in the City's 1993 Carbon Dioxide Reduction Strategy and subsequently updated the data in a 1997 progress report. A further update will be completed in 2000.</li> <li>✍ Portland introduced curbside recycling in 1992, and the average number of pounds recycled per household climbed from 226 in 1991 to 663 in 1998.</li> <li>✍ The Energy Office tracks Oregon Department of Environmental Quality reports on air quality in the Portland area.</li> </ul>
<p>A.2. Review major City policies and programs in the early stages of development to encourage energy efficiency.</p>	<ul style="list-style-type: none"> <li>✍ The 1998 rewrite of the Housing Policy section of Portland's Comprehensive Plan identified energy efficiency as a priority.</li> <li>✍ The Green Building Initiative is working with the Portland Development Commission and the Bureau of Housing and Community Development to identify ways to promote energy efficiency and green development in City-sponsored housing and development projects.</li> </ul>

A.3. Work with neighborhoods to include energy policies as a part of revitalization efforts, in neighborhood plans and in the Neighborhood Needs process.

The Sustainable Portland Commission reviewed and submitted comments regarding the Southeast Community Plan, the Southwest Community Plan and proposed tree ordinances. SPC comments cited the Sustainable City Principles and the Carbon Dioxide Reduction Strategy.

The Neighborhood Needs process was abandoned by the Bureau of Planning.

A.4. Compile information on new energy technologies, policies and programs that may prove helpful to Portland's economy and environment.

The Energy Office and other City bureaus have researched and documented new technologies in home appliances, office machines, pumps, motors, fuel cells, weatherization materials, lighting, HVAC and other equipment.

Since 1990 the City has adopted policies related to:

1. internal energy management in City facilities (1991);
2. global warming and CO<sub>2</sub> reduction (1993); and
3. natural resource use and conservation as represented in the Sustainable City Principles (1994).

More than two dozen programs focusing on new and existing residential and commercial buildings were designed and implemented in partnership with local utilities, housing groups, Multnomah County, Oregon Office of Energy, US Department of Energy, US Environmental Protection Agency, Oregon Department of Environmental Quality and others.

A.5. Participate in the utilities' least-cost planning processes. Advocate the role of cities in the development and delivery of conservation and renewable resources.

The Energy Office has participated in every least-cost planning process held by Portland General Electric, Pacific Power, and NW Natural. In addition, the City intervened in the Enron purchase of PGE and ScottishPower's acquisition of PacifiCorp. The latter resulted in a tripling of investments in local electricity conservation efforts.

The Energy Office has also been involved in the on-going Regional Technical Forum convened by Bonneville Power Administration and the Northwest Power Planning Council.

A.6. Implement local programs that reduce the level of greenhouse gases to help meet the State's goal of a 20 percent reduction in emissions by 2005.

In 1993 Portland adopted the first local climate change strategy in the US with a goal of reducing CO<sub>2</sub> emissions 20 percent below 1990 levels by 2010. Between 1990 and 1999 per capita emissions fell three percent, while population growth led to an increase in overall emissions of just over seven percent.

A.7. Support Public Utility Commission regulatory changes to encourage more utility investments in energy efficiency.

The Energy Office participated in Oregon Public Utility Commission meetings on decoupling and other financial mechanisms to encourage more investment in energy efficiency programs by PGE and Pacific Power. Both utilities have adopted mechanisms that should remove disincentives to investing in conservation.

The City supported the Regional Review of the Northwest electric system and its recommendation that states dedicate three percent of revenue for public purposes, including conservation, low-income programs and renewable energy resources.

A.8. Support stricter Federal energy efficiency appliance standards.	The Energy Office weighs in on appliance efficiency standards regularly and has coordinated its efforts with organizations such as the Urban Consortium Energy Task Force, the Consortium for Energy Efficiency and the Oregon Office of Energy. The most frequent means of expressing support has been letters to the US Department of Energy.
	Since 1990 US DOE has tightened energy efficiency requirements for cooking appliances, dishwashers, clothes washers and dryers, refrigerators, freezers, fluorescent lighting and motors, all of which the Energy Office advocated.
A.9. Review and update Energy Policy Two-Year Action Plan every two years.	Internal review of the Energy Policy and new action plans were developed annually. New program efforts were designed and implemented on a continuous basis.
A.10. Actively solicit funding for energy efficiency projects to leverage city dollars and efforts.	Since 1990 the Energy Office has received \$1.88 million from the general fund and leveraged more than \$4.68 million in grants, utility contracts and interagency agreements. This represents \$2.49 for every dollar of general fund invested.

<b>Objectives: Long-Term Plan</b>	<b>Update</b>
A.11. Evaluate and update the Energy Policy every five years.	The 1993 Carbon Dioxide Reduction Strategy served as the first update of the 1990 policy.
A.12. Support efforts to develop a Northwest energy research institute to provide technical and policy research for the substantial energy industry located in Portland.	The energy research institute that was envisioned at the time of the 1990 Energy Policy did not materialize. In 1996, however, the Northwest Energy Efficiency Alliance was formed to transform markets for energy-efficient technologies and practices, to improve energy efficiency in the Northwest, and to reduce costs to consumers and the electric system. Many of NEEA's projects include research components that provide support similar to that expected from the energy research institute.
A.13. Develop and promote energy education materials for the general public, elementary and secondary schools and libraries.	<ul style="list-style-type: none"> <li>✎ Over 10,000 citizens have attended educational fairs sponsored by the Energy Office's Block-By-Block program. At Fix-It Fairs residents attended classes such as Weatherization Workshop, Introduction to Insulation, Furnace Basics, Composting and Bicycle Repair.</li> <li>✎ Block grant funding from the Bureau of Housing and Community Development enabled the Community Energy Project to provide weatherization workshops for over 5,000 households. In addition, CEP volunteers weatherized homes for over 2,000 seniors and people with disabilities.</li> <li>✎ The Energy Office worked with local utilities and the Oregon Office of Energy to sponsor an annual October Energy Awareness campaign. Among other accomplishments, the campaign developed a fourth-grade energy curriculum, placed energy messages on grocery bags and led to special energy sections in <i>The Oregonian</i>. This outreach promoted energy-efficient technologies and encouraged residents to call for energy audits.</li> <li>✎ Over 600 households joined neighborhood EcoTeams and participated in team meetings focused on reducing energy use at home and in vehicles. This program included a CO<sub>2</sub> kit to explain global climate change and assist residents in achieving a reduction in their CO<sub>2</sub> emissions.</li> </ul>

A.14. Investigate opportunities for supporting energy programs through utility franchise agreements.

In 1996 the City issued a report titled “Role of the City in a Changing Utility Environment” which discusses several ideas for using franchise agreements to help meet City energy goals. In 1999, as a result of the proposed purchase of PGE by Sierra Pacific, Commissioner Erik Sten has requested that Sierra Pacific enter into a franchise with the City. The proposed franchise would include several elements to promote investment in energy efficiency and renewable resource projects.

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## B. ENERGY EFFICIENCY IN CITY-OWNED BUILDINGS

The City shall promote cost-effective energy savings (simple paybacks of ten years or less) in municipally owned buildings and facilities and take advantage of utility, state and Federal technical and financial assistance programs.

### Objectives: Two-Year Action Plan

Objectives: Two-Year Action Plan	Update
B.1. Determine total energy use and costs for municipal facilities and set up a system to track use and costs for major City facilities.	This objective was implemented in 1990-91 with the publication of the first City Facilities Energy Use Report. To complete this annual accounting, Energy Office staff collects data from 830 electric and natural gas meters as well as deliveries of transportation fuels for all City bureaus and facilities. This information is organized by bureau and reported as million BTUs consumed and dollars spent. In 1990-91 Portland spent \$8,961,858 for energy totaling 768,849 million BTUs. <sup>1</sup> In 1998-99, total energy costs had increased slightly to \$9,021,895 and energy use increased to 809,062 million BTUs.
B.2. Identify energy-saving measures including opportunities for the use of renewable resources in City government buildings and facilities and seek funding for improvements. Use the Oregon Department of Energy (ODOE) Small-Scale Energy Loan Program, as appropriate.	<p>To complete this objective, the Energy Office created the City Energy Challenge program in 1990-91. CEC provided or arranged for free energy audits, technical consultations and support to assist bureau project managers in identifying opportunities to conserve energy. Frequently, bureaus used their internal capital budgets to pay for energy-saving improvements. For some projects, however, the Energy Office has arranged loans to pay the capital costs. CEC advocated modeling energy performance during the design phase of new construction projects so that the architectural team would consider high performance equipment and designs. The program built strong working relationships with facility managers, construction project managers, supervisors, building technicians and electricians.</p> <p>CEC staff organized energy education and workshops and published an employee newsletter. The staff also facilitated the review and analysis of new energy savings products and developed working relationships with electric utility conservation program staff, state energy office support staff and energy staff from other cities.</p>
B.3. Develop an energy-saving incentive program to encourage efficiency in City government by returning a portion of the money saved to the participating bureaus and for other energy projects.	<p>This objective has not been implemented.</p> <p>Presently, savings from energy projects accrue to the bureau that pays the energy bill. Since the aggregated bills from many buildings dwarf the savings from a single project, the savings frequently go unnoticed. Two bureaus with large energy-efficiency projects are exceptions: Street Lighting has realized enormous savings (\$1 million annually) from the early 1980's conversion of mercury vapor lamps to high-pressure sodium lamps, and the Columbia Boulevard Wastewater Treatment Plant has reduced its electricity costs by \$650,000 annually through CEC-supported projects.</p>
B.4. Establish a set-aside fund for financing energy efficiency projects in City government buildings and facilities. Target	The City did secure funding to finance energy-efficiency projects at City facilities, though the mechanism differed from the set-aside fund described here. Instead, the City provided \$1 million from a bond measure to support energy-efficiency projects from 1991 to 1994.

<sup>1</sup> All dollar values in this report are nominal.

the fund to 6/100ths of one percent of the City's General Fund.

The recently adopted Green Building Initiative recommends identifying sources of funding for a set-aside for innovative green building practices.

B.5. Provide energy education materials to City employees to encourage energy efficiency at work and home.

Several resources were developed to implement this objective:

- ✎ Four editions of the *City Energy Challenge* newsletter distributed to approximately 200 facility managers and field staff between 1991 and 1993
- ✎ *City Heat* newsletter delivered to any employee with energy interest
- ✎ "Common Sense Tips for Resource Efficiency" flyer and posters distributed to 5,000 City employees and bureaus in 1993
- ✎ Arranged opportunity for 5,000 City employees to purchase compact fluorescent lamps for home use, 1993
- ✎ "Tips for Fuel Efficient Driving" flyer, 1994
- ✎ "How to Specify Recycled Content Office Paper" flyer distributed to copy rooms in the Portland Building, 1996
- ✎ Home weatherization resource packet available upon request through the Affordable Home Comfort Pilot, 1998.

B.6. Promote the use and design of energy-efficient street lighting systems, and continue to convert street lights to be more energy efficient.

Street Lighting converted most of the City-owned street lighting system from inefficient mercury vapor to high-pressure sodium lamps in 1983. The resulting savings exceed \$1 million annually, and this figure continues to grow as the City converts more street lamps acquired through annexation. Each year the City converts 100 to 300 additional mercury vapor streetlights to high-pressure sodium lamps.

Parks and Recreation and Street Lighting coordinated efforts during the mid 1990's to convert outdoor lighting in City parks from inefficient incandescent and mercury lamps to efficient sodium and metal halide light sources. This initiative saves \$8,600 per year.

B.7. Promote the use of life-cycle costing in purchasing decisions made by the City.

Life-cycle costing utilizes a total cost approach for making purchase decisions and includes all operation and maintenance expenses incurred over the expected life of a product. Energy-efficient products, for example, frequently have a modestly higher first cost but produce net savings over time because of lower operating costs and, in some cases, lower maintenance.

To date, life-cycle analysis guides City purchasing decisions occasionally but not regularly. For example, Fleet Services uses a form of life-cycle cost analysis to inform purchase of fleet vehicles.

One barrier to the use of life-cycle cost analysis is the added time involved to research operation and maintenance costs. Two developments offer solutions to this problem: First, product analysis software is widely available for many categories of energy-consuming products. US DOE/EPA's Energy Star program, for example, offers software to simplify this process.

Second, products marked with Energy Star certification are increasingly available. Established in 1992, Energy Star is a voluntary rating of energy performance coordinated by US EPA and DOE. Purchasers can simply specify Energy Star or better when buying energy products and know that they will capture significant operating cost savings.

<b>Objectives: Long-Term Plan</b>	<b>Update</b>												
B.8. Increase municipal energy efficiency by ten percent by the year 2000 by reducing total energy use in City-owned buildings, facilities and fleet.	The goal of ten percent was reached in 1997 and a new goal established to save 15 percent by 2000. To date the City Energy Challenge has helped identify annual savings opportunities of about \$2 million. Annual savings captured from efficiency projects are currently \$1.1 million, and cumulative savings over 9 years have reached \$7 million. Additional savings have been achieved through negotiated experimental electricity rate schedules for Street Lighting, BES, Water and General Services accounts. Cumulatively these savings total \$1.2 million.												
B.9. Promote a reduction in artificial lighting and the increased use of daylighting in all new construction or major remodeling of City buildings and facilities.	<p>During the 1990s, architects rediscovered the tremendous advantages of daylighting designs in new facilities. “Daylight harvesting” not only saves energy but also can lead to striking improvements in building atmosphere and worker productivity.</p> <p>Most notable of the daylighting designs in City structures is the renovation of City Hall, where skylights and an interior light court were restored to their 1890s design. The effect is dramatic and a fine example of how daylighting can enhance office space. Other City facilities with deliberate daylighting strategies are East Metro Community Center, Southwest Community Center, Water Pollution Control Lab, Emergency Services (911) Building and the 1900 Building.</p>												
B.10. Investigate the budget process for increasing the priority of capital improvements that reduce energy operating costs.	<p>Energy-related projects face stiff competition from other capital needs. One solution to this problem is to choose not to compete for limited Capital Improvement Plan funds and instead identify and secure funding outside of the CIP budget. Outside financing in the form of energy loans has worked on a selected list of projects.</p> <p>The State of Oregon’s Small Scale Energy Loan Program has funded two City projects, a small project replacing the heating system at Buckman Field House and a major project replacing the heating system in the Multnomah Arts Center.</p> <p>An internal energy loan was initiated through the Office of Finance and Administration and Energy Office to fund a package of lighting energy measures in General Services, Parks and Recreation, Maintenance and Fire facilities. Approximately \$450,000 at 4.5 percent interest financed these 1994-95 projects, with simple paybacks of between five and seven years.</p>												
B.11. Where practicable, exceed the energy efficiency standards of the Oregon building code for new municipal buildings, facilities and major improvements. Cost-effective energy efficiency measures shall be taken, such as energy efficient lighting, high-efficiency motors and appliances, district heating and cooling systems, and the use of renewable resources.	<p>One of the objectives of the City Energy Challenge program has been to encourage energy-efficiency designs that exceed code. While not mandatory, bureaus have generally supported this goal. Examples of facilities with leading energy designs and their savings include:</p> <table border="1" data-bbox="727 1646 1425 1843"> <thead> <tr> <th data-bbox="727 1646 818 1682"><u>Facility</u></th> <th data-bbox="1110 1646 1425 1682"><u>Annual energy bill savings</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="727 1686 1062 1713">Water Pollution Control Lab</td> <td data-bbox="1214 1686 1305 1713">\$22,912</td> </tr> <tr> <td data-bbox="727 1717 1078 1745">Southwest Community Center</td> <td data-bbox="1214 1717 1305 1745">\$26,591</td> </tr> <tr> <td data-bbox="727 1749 964 1776">City Hall renovation</td> <td data-bbox="1214 1749 1305 1776">\$15,153</td> </tr> <tr> <td data-bbox="727 1780 980 1808">Water Control Center</td> <td data-bbox="1214 1780 1305 1808">\$17,927</td> </tr> <tr> <td data-bbox="727 1812 1078 1839">Southeast Precinct renovation</td> <td data-bbox="1214 1812 1305 1839">\$10,459</td> </tr> </tbody> </table>	<u>Facility</u>	<u>Annual energy bill savings</u>	Water Pollution Control Lab	\$22,912	Southwest Community Center	\$26,591	City Hall renovation	\$15,153	Water Control Center	\$17,927	Southeast Precinct renovation	\$10,459
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The primary barrier to designs that exceed the minimum is funding. One solution to consider in the future is a dedicated budget—five percent, for example—to be used for sustainable resource designs.

The City's Green Building Initiative, adopted by City Council in December 1999, will offer technical expertise not only to continue to improve the energy efficiency of City facilities but to incorporate comprehensive sustainable design strategies into City projects. Green building practices can conserve water, energy, and other natural resources, reduce stormwater and improve air quality. These sustainable design measures will help the City improve the quality, cost-effectiveness and performance of its buildings while simultaneously reducing stress on the environment.

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## C. ENERGY EFFICIENCY IN RESIDENTIAL BUILDINGS

The City shall encourage energy efficiency in existing residences, focusing on the most energy-wasting units, by helping to develop and promote public/private partnerships, utility, local, State and Federal programs. The City also shall promote energy efficient new housing by enforcing the energy saving standards in the State building code.

<b>Objectives: Two-Year Action Plan</b>	<b>Update</b>
C.1. Facilitate the weatherization of 8,000 low-income, multi-family units through the City's Multi-Family Weatherization Program by 1992.	Portland's award-winning Multi-Family Weatherization Program met this aggressive goal, weatherizing 8,679 low-income units by the end of 1992.
C.2. Expand the Multi-Family Weatherization Program to include single-family rental homes, when funding is available.	During the summer of 1999, the Energy Office piloted a single-family program using a model similar to the Multi-Family Weatherization Program. The Affordable Home Comfort pilot was marketed to 6,700 households in central northeast neighborhoods. During the initial limited-time offer, 193 homes signed up for free energy audits provided by local utilities and the state. By the pilot's October deadline, 36 households had completed weatherization and many more anticipated completing work over the next year.
C.3. Actively promote utility-sponsored energy efficiency programs for Portland homeowners.	<p>A number of City programs have accomplished this objective. The Energy Office continues to provide numerous telephone referrals each day to gas and electric utilities for free energy audits and financial incentives.</p> <p>In addition, the Energy Office sponsors between two and four Fix-It Fairs each year in partnership with local utilities. Over the past ten years almost 10,000 residents have attended the fairs (see A.13).</p> <p>In 1992 and 1993 the Water Bureau and Energy Office participated in community-wide distribution of low-flow showerheads, faucet aerators and toilet tank water-saving devices. All Portland households received offers for free devices over the two-year period.</p> <p>In the 1999 Affordable Home Comfort pilot (see C.2), the City partnered with utilities to offer energy-efficiency services to 6,700 households.</p>
C.4. Identify ways to meet the weatherization needs of elderly residents. Provide services in conjunction with agencies that serve the elderly.	<p>The Community Energy Project serves 200 households annually through a Bureau of Housing and Community Development-funded program to install weatherization materials in the homes of senior and disabled residents.</p> <p>Fix-it Fairs also provide opportunities to enroll in federally funded bill paying assistance programs, Water Bureau bill payment programs, and free weatherization services through the City's Block-By-Block program.</p>
C.5. Better serve low-income households, including Section 8 recipients, by coordinating with social service agencies and utilities through programs such as the Block-By-Block Weatherization Program and the	<p>✎ The Energy Office regularly refers callers, many of whom are low-income, to appropriate social service agencies and utilities, and Block-By-Block Fix-it Fairs feature booths by social service agencies. The BBB program also provides free weatherization services for neighborhood-based community development corporations and has weatherized over 100 CDC-owned homes.</p> <p>✎ BHCD has provided funding for the Community Energy Project,</p>

Low-Income Energy Assistance program. Investigate ways to share costs with property owners.

which sponsors hands-on workshops for about 500 households each year. The workshops typically cover a variety of energy-related topics and distribute a free kit of materials for participants to install themselves. The kit includes plastic storm windows, caulk, weatherstrip and other energy-saving products.

✎ PDC offers low-interest financing for housing rehabilitation projects.

C.6. Promote energy efficient new construction by actively supporting the inclusion of cost-effective residential energy-saving measures for all home heating fuels in the State Building Code. The code should be similar to the Northwest Power Planning Council's Model Conservation Standards.

The Bureau of Planning (now the Office of Planning and Development Review) helped shape revisions to the state building codes, including major upgrades to the energy codes for residential buildings in 1992 and commercial buildings in 1995. In the commercial code review process Bureau of Planning staff were instrumental in recommending that cities needed to be proactive in reviewing plans to be sure that energy codes were met.

C.7. Support the development of a uniform home energy rating system to provide information on the energy performance of new and existing homes.

The Oregon Office of Energy and Oregon Housing and Community Services organized Energy Rated Homes of Oregon (ERHO) in 1996 to offer a uniform energy rating system to home purchasers. The rating includes inspection of energy components (windows, insulation, heating system, lights, appliances), testing air tightness with a blower door, a report describing the relative efficiency of uses that contribute to a utility bill, an estimate of annual utility costs and recommendations for energy improvements. Unfortunately, although the structure for Energy Rating is now in place, it is rarely used. ERHO currently rates only about 10 homes per year. ERHO cites education of home mortgage officers and realtors as key barriers to overcome before energy ratings become a standard part of home purchasing.

C.8. Investigate requiring energy audits for any residential structure receiving financing from the Portland Development Commission.

This objective has not been implemented. However, PDC recently initiated The Green Home Rehab Loan, a new program that offers assistance in design and material choice as well as home improvement financing. This new loan is offered throughout the community, promoting healthy indoor air, resource efficiency, and energy conservation.

C.9. Avoid lost conservation opportunities by encouraging property owners to install all cost-effective weatherization measures when weatherizing their rental properties.

Various Energy Office programs address this objective, including the Block-By-Block and Multi-Family programs. In addition, the Energy Office publicizes and makes referrals to utility conservation programs, the State Home Oil Weatherization program and the State's Business Energy Tax Credit.

<b>Objectives: Long-Term Plan</b>	<b>Update</b>
C.10. Identify ways to encourage local lenders to promote energy-efficient homes by counting future energy savings as income when determining the size of a home loan.	While low-interest mortgages for energy-efficient homes are available through Federally insured loans, few lenders offer them to the borrowers because of the additional time to complete energy and weatherization measures and the reluctance of realtors and mortgage lenders to delay the sale.
C.11. Investigate options for time-of-sale weatherization for residential properties.	This objective is still pending.
C.12. Facilitate the weatherization of 20,000 low-income multi-family units by the year 2000.	<p>By the end of 1999, the City's multi-family programs provided direct services to property owners to weatherize 17,496 units.</p> <p>In addition, Multnomah County's Office of Community Action and Development has weatherized 1,340 units with US DOE and HUD funds. Oregon's Business Energy Tax Credit program has served an additional several thousand units directly, and NW Natural has served approximately 1,500 Portland residents through its cash payment and BETC pass-through incentive programs.</p>

## D. ENERGY EFFICIENCY THROUGH LAND USE REGULATIONS

The City shall promote residential, commercial, industrial and transportation energy efficiency and the use of renewable resources.

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### Objectives: Two-Year Action

#### Plan

D.1. Promote land-use patterns that increase energy efficiency in buildings and transportation systems by making energy efficiency a critical element when developing new zoning regulations and modifying old regulations and the comprehensive map. This objective applies to the following long-range planning efforts:

- (a) Downtown, regional and neighborhood commercial service centers and central industrial areas with a balance of complementary retail and employment activities. Locate them near major arterials and transit lines.
- (b) Medium and high-density residential zones in and adjacent to the downtown core. Develop other general commercial centers and medium-density residential zones adjacent to neighborhood service centers.
- (c) Housing adjacent to employment areas.
- (d) Planned unit developments to include mixed uses.
- (e) Zero lot line/common wall construction in designated low and medium density residential zones.
- (f) Buildable "substandard" lots.
- (g) Secondary rental units in single family, owner-occupied homes.

#### Update

In 1999 the Brookings Institute reported that Portland was one of the very few cities in the US where the share of housing starts in the "central city" of the region (Portland) increased in relation to total housing growth in the metropolitan area. In FY 98-99, Portland issued permits for 3,780 housing units out of approximately 10,000 in the urban growth boundary and 15,000 in the four-county region (Multnomah, Clackamas, Washington, and Clark). A number of efforts have contributed to this trend:

- ✎ Over the past decade, Portland completed a number of community plans that include design guidelines, zoning, and other policies to support transit-oriented development.
- ✎ Portland now allows accessory dwelling units throughout the City.
- ✎ The Multi-Dwelling Infill Project amended the regulations in multi-dwelling zones to encourage infill on parking lots and small vacant parcels and to remove incentives to demolish good housing.
- ✎ Portland placed limits on "big box" retail stores to protect industrial and employment zones.
- ✎ Portland developed a program that allows the City to grant limited ten-year property tax exemptions to promote mixed-use and mixed-income residential development near light rail stations and major transit routes.
- ✎ The Transportation Planning Rules set standards for new development to encourage buildings to orient to the pedestrian as well as to the auto.

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D.2. Promote density, location and mix of land uses that decrease the length of required daily trips and encourage the consolidation of related trips.

Portland's efforts to reduce transportation-related energy have met with partial success. The number of vehicle miles traveled per capita in the metropolitan area increased almost 12 percent between 1990 and 1998, but this number is relatively low for cities that grew rapidly in the 1990's. Examples of Portland's mixed success include:

- ✎ Portland built over 115 miles of bikeways during the 1990's, bringing the total to 207 miles. There are signs that Portland's investment in bicycle infrastructure is paying off. The number of bicyclists crossing the Hawthorne Bridge each day, for example, increased from 750 in 1990 to 2,620 in 1999.
- ✎ The percentage of Multnomah County residents commuting by transit increased from 10 percent in 1990 to 14 percent in 1998. As suggested above, however, this increase has not been accompanied by a decline in driving.
- ✎ Each year, Multnomah County residents consume approximately 400 gallons of gasoline per capita. This figure has fluctuated over the past decade with no consistent trend.

D.3. Promote medium to high density residential development near proposed transit stations and medium density residential development along major transit routes.

As noted in D.1, the City grants limited ten-year property tax exemptions to promote mixed-use and mixed-income residential development near light rail stations and major transit routes.

In addition, zoning changes in the community plans promoted residential development along transit routes. The Hollywood/Sandy Boulevard project, for example, is a planning effort targeting a major transit corridor designated in regional planning efforts. The project is expected to lead to greater density along this corridor.

D.4. Reduce energy consumed for space heating residential buildings by promoting the construction and renovation of attached single and multi-family dwelling units.

The City Comprehensive Plan explicitly incorporates this objective (Section 7.4) and also promotes the construction of attached dwelling units in other objectives (see, for example, Section 4.7).

D.5. Promote tree planting as a way to reduce summer cooling loads and air pollution, making sure the trees do not cause the need for additional street lighting.

- ✎ In 1999 the City revised the zoning code to require most new residential construction projects either to preserve existing trees, plant new trees, or pay into a Tree Fund.
- ✎ In the City's own operations, tree planting is now a standard element in street construction and improvement projects. Transportation projects in 1998-99 included 1,000 street trees.
- ✎ As part of its efforts to protect water quality, the Bureau of Environmental Services restores native vegetation. Plantings in 1999 included nearly 300,000 trees and 144,000 shrubs, and plans for 2000 call for a significant increase.
- ✎ Parks and Recreation typically plants more than 500 trees per year, the majority of which are native species. While most of these trees are planted in parks, many are sited on other public property, such as near water towers or City buildings, where they can improve energy efficiency.
- ✎ The City has also supported tree planting by contributing to the Seed the Future Campaign run by the nonprofit organization Friends of

Trees. Over the past four years, it has planted over 122,000 trees and seedlings.

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<b>Objectives: Long-Term Plan</b>	<b>Update</b>
D.6. Investigate the potential for energy savings from solar access standards for commercial buildings and multi-family housing.	The Energy Office conducted a preliminary investigation of the potential for solar access standards for commercial and multi-family properties in 1992. More recently, solar applications have been considered on a number of City facilities as part of the CEC. More work to quantify specific savings will be integrated into the City's new green building efforts.
D.7. Work with other governments in the region to promote both mass transit and compact urban growth.	The City actively participates in Metro 2040 Planning. City Council members serve on the Metro Policy Advisory Committee and the Joint Policy Committee on Transportation.

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## E. ENERGY EFFICIENCY IN COMMERCIAL AND INDUSTRIAL FACILITIES

The City shall encourage energy efficiency in existing commercial buildings and institutions by facilitating utility, local, State, and Federal financing and technical assistance.

<b>Objectives: Two-Year Action</b>	
<b>Plan</b>	<b>Update</b>
E.1. Help 100 Portland businesses access existing utility, State, and Federal financial and technical assistance programs by 1992.	Through contracts with PGE and Pacific Power in 1992 and 1993, the Energy Office provided early design assistance and information on incentives to 137 projects (new construction or major renovation). These projects included Fred Meyer's Corporate Headquarters, Gateway Shopping Center, Nature's Northwest, Nordstrom at Washington Square, two warehouses for Tyco Toys, a new 80-unit Silver Cloud Inn and the 58,000 square foot Center for Self Enhancement.
E.2. Actively support utility programs for commercial and industrial energy efficiency.	The Energy Office has become a clearinghouse for information on utility programs and responds to frequent inquiries for assistance. The Energy Office continues to promote the availability of and access to utility assistance and incentives for businesses (See E.1). The Office also promotes the availability of the State's 35 percent Business Energy Tax Credit and have helped a number of businesses prepare BETC applications. Industries that qualify are referred to the on-site technical assistance available through OSU's Industrial Assessment Center.
E.3. Support the amendment of the ODOE Business Energy Tax Credit program to offer up-front energy efficiency tax credits for businesses, similar to the incentives offered to multi-family building owners.	Energy Office staff has been actively involved in the BETC administrative rule process since 1990. During that time, BETC has been amended twice to allow a "pass-through" for up-front incentives. Senate Bill 13, passed by the 1993 Legislature, extends the pass-through to rental properties (28.87 percent of their investment upon completion). With Senate Bill 570, the 1999 Legislature expanded the pass-through option to include "any measure which qualifies for BETC," effective January 1, 2000. These up-front incentives make it more convenient for business owners to get the financial benefit offered by BETC.
E.4. Continue to promote the inclusion of cost-effective commercial energy saving measures in the State building code, similar to the Northwest Power Planning Council's Model Conservation Standards, and require that commercial building designers submit energy code compliance forms with their applications for building permits.	The State has the primary responsibility for updating the commercial building code, but the City has also taken an active role. The Energy Office encouraged the State to include cost-effective energy efficiency measures. The Bureau of Buildings requested code simplification coupled with education of building inspectors, architects, and others (see C.6).
E.5. Train Bureau of Buildings plans examiners to review plans for compliance with the commercial energy code with emphasis on lighting code requirements.	City commercial building inspectors participated in commercial energy code compliance training first in 1991 and regularly since then. City inspectors received training on both paper forms and computer software compliance documentation. In addition to training City employees, the City spends about \$60,000 a year on contracts with energy code consultants to ensure compliance on larger projects (\$2.5 million cost or more).
<b>Objectives: Long-Term Plan</b>	<b>Update</b>

<p>E.6. Provide information to developers, architects, builders and others interested in improving energy efficiency in new construction.</p>	<p>New construction has been a significant part of City commercial and industrial outreach efforts. The Energy Office has worked individually with a number of design teams to share opportunities for improved efficiency, and, where appropriate, has provided information on programs such as Green Lights, Energy Star and PGE’s Earth Smart.</p>
<p>E.7. Help local schools, hospitals, and other public and non-profit groups to participate in State, Federal and utility-sponsored energy-efficiency programs.</p>	<p>The recently approved Green Building Initiative will enhance the energy-efficiency assistance the City offers to new construction projects by combining this information with a comprehensive approach to sustainable building.</p> <p>Multnomah County and Portland Public Schools staff are regularly invited to trainings offered to City employees (see E.8). The Energy Office has assisted the local chapter of Association of Professional Energy Managers to set agendas for training events that help staff at the City, County, schools, and other buildings implement efficiency programs. These events have included information on available programs, lease-purchase options and case studies of successful energy-saving projects.</p>
<p>E.8. Help set up training for businesses, schools and institutions on operation and maintenance, energy accounting, life-cycle costing and other energy efficient management practices. Target small and medium businesses and major energy-using buildings.</p>	<p>The City Energy Challenge has supported training opportunities for energy, facility, and fleet managers in Portland. The Energy Office has both conducted trainings and publicized others’ training events. Energy Office roles and examples of trainings include:</p> <ul style="list-style-type: none"> <li>✍ setting the agenda for Association of Professional Energy Managers forums (from Cooling Tower Efficiency in October 1993 to Access Floor Ventilation Systems in September 1999);</li> <li>✍ offering Green Lights and Energy Star trainings and, in coordination with US DOE and the local Clean Cities Coalition, training on alternative fuel vehicles, station cars and related topics.</li> <li>✍ facilitating local trainings by the Oregon Office of Energy (e.g. Direct Digital Controls, November 1993), OSU Extension Service (e.g. Boiler Maintenance) and PGE (e.g. Lighting Fundamentals, Office Lighting, and Adjustable Speed Drives); and</li> <li>✍ publicizing training opportunities offered by local vendors such as Trane (CFC Replacement) and Landis &amp; Gyr (Automatic Temperature Controls).</li> </ul>
<p>E.9. Explore opportunities for promoting solar energy use and daylighting in commercial buildings.</p>	<p>The Energy Office has encouraged solar energy use and daylighting in a number of one-on-one contacts with commercial property owners. Two local projects, Marco’s Café (solar) and Mill End Store (daylighting), received BEST Business Awards and have been documented in case studies.</p> <p>Several City facilities, most notably City Hall and the new 1900 Building (see B.9) have incorporated daylighting, and the Energy Office has also investigated but not yet implemented using solar power for certain Parks and Recreation facilities. One City application of solar is at the Bureau of Maintenance, where repair vehicles were recently refitted with solar panels to provide power for the “mobile shops” without running the vehicles’ engines.</p>
<p>E.10. Work with industry to identify opportunities for improving energy efficiency in process applications, including</p>	<p>Portland has been a leading local proponent of Climate Wise, EPA’s voluntary resource-efficiency program for industry. The City has recruited over 40 businesses to sign Climate Wise pledges (25 in the greater Portland metro area) and has worked with Climate Wise companies to</p>

waste-heat recovery for cogeneration and district heating and cooling. Promote applicable State, Federal and utility programs or incentives.

establish their action plans. The Energy Office assisted the Oregon Office of Energy, OSU, Washington State University and the Bonneville Power Administration with their respective industrial efficiency efforts, including promoting the Industrial Assessment Center at OSU, technical resources available through WSU's Energy Ideas Clearinghouse, the quarterly NW Industrial Efficiency Forums (and a later incarnation, the Industrial Technical Assistance Providers) and participating in major industrial events such as the NW Plant Managers Show. In addition, the Energy Office has coordinated with BES and the Water Bureau to conduct industrial site visits.

E.11. Study the impacts of reducing Multnomah County personal property tax for new investments in energy efficient equipment.

The property taxation program administered by Multnomah County is based upon State statutes rather than local provisions, so tax incentives for investments in energy-efficient equipment would have to be legislated at the State level.

No changes in local property taxes for new energy-efficient equipment have been made since 1990. Other significant property tax changes, however, have curtailed local property tax revenues. In light of this, interest in further reducing revenue from local property taxes appears to be limited.

E.12. Encourage district heating and cooling and renewable resources in new commercial and institutional buildings.

During the renovation of City Hall the Energy Office investigated the option of a district heating/cooling system for the facility. Since then, PGE has created a subsidiary, Portland Energy Solutions, to establish a district cooling system in downtown Portland. The Energy Office has argued for more favorable treatment of direct application renewable energy through the state's Business Energy Tax Credit.

E.13. Study and provide information to the development community on the costs and benefits of certification of commissioning of air balancing, controls and HVAC equipment in commercial buildings. (Commissioning means that energy systems in new buildings are certified to work in the way they were designed in the original plans.)

The Energy Office has worked closely with the Northwest Power Planning Council, Portland Energy Conservation, Inc., the Oregon Office of Energy and the Northwest Energy Efficiency Alliance to encourage commissioning new buildings and retro-commissioning existing buildings. The City has commissioned several of its own new facilities, including the Water Pollution Control Lab and the Southwest Community Center. Other commissioned buildings include the new federal justice center, some Multnomah County buildings and a number of new schools. The Energy Office provided a representative to the Commissioning Collaborative and worked with OOE to have commissioning considered an eligible expense for BETC. In addition, the Energy Office offered assistance with both regional and national commissioning conferences held in Portland.

## F. ENERGY EFFICIENT TRANSPORTATION

The City shall provide opportunities for non-auto transportation including alternative vehicles, buses, light rail, bikeways and walkways. The City shall also promote the reduction of gasoline and diesel use by conventional buses, autos and trucks by increasing fuel efficiency and promoting the use of alternative fuels.

**Objectives: Two-Year Action**

<b>Plan</b>	<b>Update</b>
F.1. Conduct an alternative fuels demonstration project in conjunction with appropriate utility, local and state government agencies.	<p>In August 1990 the City of Portland purchased six dual-fuel sedans and one minivan to investigate their feasibility. These cars run on either gasoline or compressed natural gas. During the first three years of operation the Energy Office tracked the performance of these vehicles, monitoring fuel use and tailpipe emissions, and surveyed users and fleet mechanics about the vehicles. The vehicles performed well, but with no convenient access to CNG refueling, they often were driven on gasoline just like other fleet vehicles. All feedback was shared with other fleet managers who have been considering alternative fuel vehicles.</p> <p>The City has promoted the expanded availability and use of alternative fuels through participating in the local Clean Cities Coalition. In addition, the Energy Office has investigated propane and battery electric options and may consider the purchase of one or more hybrid electric vehicles in the future.</p>
F.2. Initiate the amendment of current ODOE Business Energy Tax Credit and Small-Scale Energy Loan Program legislation to include financial incentives for transportation options that reduce greenhouse gases and improve air quality.	<p>To encourage the availability and use of AFVs in area business fleets, the Energy Office worked closely with OOE to modify state administrative rules to allow transportation-efficiency options. The changes that were made allow alternative fuel vehicles, vans for vanpooling, computers and other office equipment for teleworking and AFV refueling systems to qualify for BETC. The tax credit has been used for a number of these projects since the change was made. Similar changes were made to Small Scale Energy Loan Program rules, though the loan program has not yet been used for these kinds of projects.</p>
F.3. Support efforts to ensure the energy efficiency of the transit system, including good street maintenance and traffic light synchronization.	<p>The City has partnered with Tri-Met and ODOT to expand the fiber optic backbone in the region, enabling us to connect more traffic signals within the City of Portland and coordinate traffic flow across city, state and county boundaries. In addition, the traffic control system covers an increasing number of intersections. Cameras have been added on Naito Parkway at Morrison Bridge and on Barbur Boulevard at Bertha. These cameras improve traffic flow into and out of the central business district when traffic is stopped across the Hawthorne Bridge.</p>
F.4. Promote shared recreational use of school facilities and City parks, close-in recreation opportunities, and improved scheduling of events to reduce recreation-related transportation needs.	<p>The City has had a joint-use agreement with Portland Public Schools for nearly three decades. In this arrangement, Portland Parks and Recreation and PPS give each other priority use of grounds and buildings after meeting their own respective program needs. Although the coordination of this joint-use arrangement requires patience and staff time, sharing facilities allows both agencies to avoid costly duplication.</p> <p>Currently, PP&amp;R uses PPS school gyms for Saturday youth basketball program, PPS uses PP&amp;R sports fields for high school practices and games, and PPS provides PP&amp;R Community School Coordinators office space and classrooms to coordinate afterschool classes and activities for</p>

youth and families.

Activities are scheduled in facilities that are as close to participants' homes as possible, but data on reducing transportation needs have not been collected.

<p>F.5. Promote the construction of a regional light rail transit system.</p>	<p>The City has been a key supporter of expanding light rail in the region. The first leg of the regional light rail system (MAX) opened in 1986 with a line running between Gresham and downtown Portland. In 1998 the westside MAX opened, extending light rail service to Hillsboro. At about the same time, plans for a north-south line to Vancouver fell through. Since then, three additional light rail projects have been initiated: the downtown trolley, the airport MAX and the Interstate Avenue MAX line. The downtown trolley, a City-led project, will be operating in early 2001. The airport MAX, a unique public-private project, will begin operating in fall 2001. Construction on Interstate MAX will start around that time with plans to start operating in 2004. The City will contribute \$30 million to the Interstate MAX project.</p>
<p>F.6. Support efforts to remove the limitation in the State Constitution affecting local vehicle registration fees. Additional fees could be used for non-highway projects such as alternatives to auto-based transportation, if local voters authorize.</p>	<p>The City supported a ballot initiative that went to Oregon voters in November 1997. This bill would have charged Portland metropolitan area car owners a higher fee (\$60 instead of \$30 for two years) than other Oregonians, with the additional funds going to efforts to reduce vehicle miles traveled in the area. Despite the support of both the City and voters within Portland, the ballot initiative was defeated.</p>
<p>F.7. Support an increase in the Federal mileage standards for new cars.</p>	<p>The Corporate Average Fuel Efficiency standards were initially established in 1978 to set a minimum level of average fuel efficiency of all vehicles sold in the US. The standard took effect in 1978 at 18 mpg for cars and increased gradually each year until 1985, when it reached 27.5 mpg. Like the passenger car standards, standards for light trucks, a category that includes minivans and sports utility vehicles, have not increased since 1985 and remain at 20.7 mpg. The City has been a vocal advocate of increasing federal CAFE standards for cars and light trucks, and the City's Carbon Dioxide Reduction Strategy included a call for raising the standards to 45 mpg for cars and 35 mpg for trucks by 2010.</p>
<p>F.8. Promote walking and bicycle commuting by identifying routes, encouraging spot hazard improvements on city streets, the provision of bicycle lockers at park-and-ride lots and investigating bicycle commuter service centers and covered walkways/sidewalks.</p>	<p>In May 1996 City Council adopted a bicycle master plan that identified 622 bikeway miles. In 1989 the City bikeway network consisted of 76 developed bikeway miles (9 miles of boulevards, 36 miles of lanes and 31 miles of off-street paths). At the end of 1999 the City had 207 miles of developed bikeways (24 miles of boulevards, 134 miles of lanes and 49 miles of paths). Another 26.5 miles are funded for development in 2000.</p> <p>In 1994 the City established a spot improvement program to encourage bicycling through low-cost, small-scale improvements suggested by concerned bicyclists. In response to citizen requests, the City has swept glass and debris, patched potholes and refitted many drainage inlets with bicycle-friendly grates.</p> <p>Almost all Tri-Met Transit Centers now have bicycle lockers or other types of bicycle parking. In 1996 the first of four Bike Centrals for</p>

bicycle commuters opened. These facilities, the product of a joint venture between the City and private athletic clubs, provide showers, permanent clothes storage and secure bicycle parking to central city bicycle commuters. Approximately 150 spaces are available at the four locations (three downtown and one in the Lloyd District). Occupancy is at 50 percent, and data indicate that these centers have motivated commuters to bicycle to work rather than driving.

<b>Objectives: Long-Term Plan</b>	<b>Update</b>
F.9. Support an increase in the number of preferentially located parking spots available for carpools. Promote their availability.	<p>The number of carpool spaces downtown has increased from approximately 760 to 825 since 1990 primarily through two measures:</p> <ol style="list-style-type: none"> <li>1) requiring preferential carpool parking spaces in new garages; and</li> <li>2) requiring that certain existing surface lots reserve a number of discounted carpool parking spaces and contract with Tri-Met to administer and promote their availability.</li> </ol> <p>The City continues to improve the placement of on-street carpool parking spaces. New construction and changes in the use of buildings demand constant management of the on-street parking supply to provide adequate carpool parking downtown. In January 2000 a pilot carpool program called "Pool to the Pearl" began offering preferential carpool parking in recently paved and metered streets in the Pearl District in northwest downtown.</p>
F.10. Match carpool riders and provide transit information to City employees. Promote public/private partnerships to increase employee rideshare, transit use and flex-time.	<p>Under an air quality offsets program, the City has helped approximately 10 downtown employers develop programs to increase transit ridership and carpools and to implement flexible work schedules. This effort was highly successful and realized all available parking offsets. Through compliance efforts to meet ECO Rule, the City has promoted transit, carpool and bike-to-work programs to the City workforce. Major worksites have transportation coordinators who have current information on the City's alternative commuting programs.</p>
F.11. Investigate offering reduced-cost bus passes to City employees and encourage similar action by the State, Multnomah County and private employers.	<p>In 1995 the City implemented the Trip Reduction Incentive Program, which offers a \$20 per month incentive to employees who take transit or participate in a carpool. In 1999 the program expanded to offer a similar benefit for employees who bike or walk to work. Over 1,400 City employees participate in the program. (This excludes sworn police officers and firefighters, who ride free on Tri-Met when they show their badges.)</p> <p>The City has partnered with Tri-Met and businesses to create reduced transit fare programs on Marquam Hill (a BEST award-winning project), in the Lloyd District and in Northwest Portland. Under these programs, employees receive transit passes at no or minimal cost. These programs have included improved transit service, and the combination of convenient service and minimal cost has resulted in substantial increases in transit ridership.</p>
F.12. Promote and provide technical assistance on alternative fuels for downtown business fleets.	<p>In 1994 the City led the effort to establish a Clean Cities Coalition in Portland. Clean Cities is a US DOE program to promote the expanded availability and use of alternative fuels and alternative fuel vehicles. The coalition included area fleets such as Tri-Met, Franz Bakery and Multnomah County. Since 1994 more than 200 new AFVs have been added to coalition members' fleets. The Energy Office held a number of</p>

meetings and training sessions to inform participants of new products, regulations and incentives as they became available.

In 1996 the City provided the first free, public electric vehicle recharging systems in Portland. EV recharging is available in two City parking garages, 1<sup>st</sup> and Jefferson and Front and Davis. Later the same year, PGE began offering on-street EV charging in front of its World Trade Center building.

<p>F.13. Support changes in Federal tax laws to increase deductions for employer paid transit.</p>	<p>The Energy Office actively supported the Commuter Tax Benefit, which allows employees to save money on commuting costs and employers to save money on payroll taxes. Employers can use the benefit to reward employees, promote smart commuting patterns in their communities, save on parking expenses, reduce congestion and become more competitive in today's tight labor market.</p>
<p>F.14. Promote efficient transportation options for commuting between Northwest urban centers.</p>	<p>The City of Portland has worked with ODOT, Amtrak and others to improve the availability of travel between Northwest urban centers while reducing travel time. The most visible result has been the addition of high-speed rail travel options between Eugene and Seattle. Between October 1998 and September 1999, 90,000 passengers rode a total of 20 million passenger-miles on state-supported trains and buses. The system is expected to expand further in 2000.</p>

## G. TELECOMMUNICATIONS AS AN ENERGY EFFICIENCY STRATEGY

The City shall research and support telecommunication opportunities that reduce the need for travel.

### Objectives: Two-Year Action

#### Plan

G.1. Develop a telecommunications policy for internal City use.

#### Update

The Communications Division of the Bureau of General Services (ComNet) has completed an engineering and design study to transform the City's telecommunications networks for internal use to converged broadband transport for voice, video and data. The network plan, called IRNE (Integrated Regional Network Enterprise), will support large-scale telecommuting, teleconferencing and information sharing among public sector agencies.

G.2. Examine City-wide telecommunications needs with local businesses, agencies and developers.

ComNet, in collaboration with PDC, the Cable and Franchise Office and PDOT, is working with developers, utilities and telecommunications companies to deploy strategic telecommunications infrastructure in the City's public right-of-way. This collaboration will produce more competition, better-structured networks and less disruption to the streets.

### Objectives: Long-Term Plan

G.3. Investigate opportunities for City employees to allow off-site work and telecommuting, when appropriate.

#### Update

The Energy Office initiated a telework pilot in early 1994. The results were promising, and City Council was strongly supportive. The City passed an ordinance in support of offering telework opportunities for non-represented City employees in August 1995. In November 1996 that ordinance was expanded to allow all City employees to participate. The Energy Office prepared guidelines and a workbook to assist City bureaus in establishing telework programs.

G.4. Work with neighborhood commercial districts to identify and put into use telecommunication applications.

PDC and ComNet have consulted with various developers, architects and local businesses on the availability of telecommunications service, high bandwidth applications and deployment. With a more specific City strategy, however, the City can accomplish still more in this area.

G.5. Investigate opportunities for a "24-hour City Hall" to provide information by computer access on City activities, services, hearings, and cultural/recreational events.

City bureaus are offering increasingly sophisticated interfaces and materials to on-line visitors, and all City residents can access the Internet at Multnomah County libraries.

The City has begun to develop e-commerce options for users to complete permit applications and pay fees, fines, and for other services on-line. Work has also begun on creating public access terminals in locations with 24-hour access.

The City website currently offers:

- ✎ a powerful search engine for searching City sites
- ✎ the City Code and City Charter
- ✎ zoning maps from the Planning Bureau and OPDR
- ✎ official City budget documents
- ✎ City job listings and applications
- ✎ bid announcements from the Bureau of Purchasing
- ✎ staff contact information for most bureaus
- ✎ Y2K community information
- ✎ on-line sign-up for PP&R community schools classes
- ✎ business and residential building codes

- ✎ e-mail addresses for elected officials and bureau managers
  - ✎ the City Council Agenda
  - ✎ on-line viewing of Council sessions
  - ✎ audio/video archives that will eventually include any audio or video record (community meetings, presentations) a bureau wishes to make available on-line
  - ✎ scores of documents and reports from a variety of bureaus that historically would have required phone calls and mailings.
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## H. ENERGY SUPPLY

The City shall promote conservation as the energy resource of first choice. The City shall also support environmentally acceptable, sustainable energy sources, especially renewable resources such as solar, wind, hydroelectric, geothermal, biomass (wood, farm, and municipal waste), cogeneration and district heating and cooling.

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### Objectives: Two-Year Action Plan

### Update

H.1. Investigate and advocate opportunities for competitive bidding to “sell” conservation to utilities or the Bonneville Power Administration (BPA). The City could operate conservation programs and deliver “saved energy” in the form of less electricity or gas used. Assist the Oregon Public Utility Commission (OPUC) and others on the development of competitive bidding policies.

In 1998 PGE put out a competitive bid for conservation programs. The City responded with a cost-effective program targeting refrigerators in multi-family housing. PGE ultimately funded no projects from the solicitation.

Senate Bill 1149, passed in 1999, requires that electric utilities invest three percent of revenues in energy conservation, low-income service and renewable resources. The result will likely be a competitive process for most conservation programs. The City will develop appropriate projects in partnership with other public and private entities to respond to competitive solicitations in 2001.

H.2. Promote the continued long-term production and use of methane at City-owned facilities, such as the St. Johns Landfill and Columbia Boulevard Wastewater Treatment Plant.

For 50 years Portland-area garbage was deposited at the St Johns landfill site in North Portland. In 1991 the landfill stopped accepting solid waste and Metro began a \$36 million closure project. Closure involved capping the landfill with earth and vegetation, collecting biogas (methane), and constructing a 9,400-foot pipeline to deliver the gas to a local cement kiln. Completed in 1998, the project is highly successful, diverting 1.5 million cubic feet of landfill gas from the atmosphere per year. The energy captured from the gas is equivalent to 8 million therms of natural gas per year—enough to serve 3,500 Portland homes. Carbon dioxide reductions from the utilization of the energy in landfill gas are estimated to be 23,000 metric tons per year.

The Columbia Boulevard Wastewater Treatment Plant produces anaerobic digester gas (ADG) as a natural by-product of treating wastewater. Sixty percent of this gas is methane, a usable energy source. In addition to using the gas on-site to provide process heat and supplying gas to a neighboring roofing business, in 1999 BES installed a fuel cell power plant to provide highly reliable electricity to the Dodd Building control center and utilize about 20 percent of the surplus ADG. The 200-kilowatt power plant is the first ADG fuel cell in the western US and the first developed by a municipal wastewater agency. The fuel cell offers extremely high efficiencies and environmental benefits. If fuel cell technology proves itself over time, CBWTP has the potential for up to two megawatts of power generation by combining power generation and heat recovery.

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H.3. Develop an energy supply assessment for the City, including solar, biomass and opportunities for using district heating and cooling, when funding is available.

Portland Energy Services, an Enron subsidiary, recently completed feasibility studies for district heating and cooling and has determined district cooling to be economically attractive for the downtown business district. PES has initiated application to the City for a district cooling franchise and is soliciting commercial buildings to participate. Final City approvals and the minimum number of participants have not yet been secured, so the project is still tentative.

In the early 1990's PGE produced a renewable energy plan drawing on input from task forces on wind resources, hydropower and solar energy.

<b>Objectives: Long-Term Plan</b>	<b>Update</b>
H.4. Develop an energy contingency plan based on the State's plan to protect against fuel shortages.	The Energy Office reviewed and commented on the local government volume of the statewide energy contingency plan. A copy of the plan is kept on file.
H.5. Investigate the potential for using the City's groundwater system and wastewater treatment plant for district heating and cooling.	This has not been studied.

## I. WASTE REDUCTION AND RECYCLING

The City shall promote energy-saving activities such as 1) reduced use of excess materials, such as packaging; 2) recovery of materials from the waste stream for direct reuse and remanufacture into new products; 3) recycling; and 4) purchase of products made from recycled materials.

<b>Objectives: Two-Year Action Plan</b>	<b>Update</b>
I.1. Continue to support both City and intergovernmental efforts in the recycling of office wastepaper and other recyclable materials, the curbside recycling program and composting.	As of December 1999, BES had developed and implemented city-wide recycling programs for all materials that are locally recyclable, including a nationally recognized program for curbside residential pick up and a mandate that all businesses have recycling programs.
I.2. Set up recycling programs for 500 multi-family buildings and 20 downtown commercial buildings by 1992.	By the end of 1992, BES had established recycling programs for more than 500 multi-family buildings. Since 1996, all Portland businesses and multi-family buildings have been required to have recycling systems in place.
I.3. Help local businesses develop markets for recyclable materials.	BES has worked with the Oregon Recyclable Market Development Council, Metro and local processors to develop markets for recyclable materials.
I.4. Develop a plan, including targets and a schedule, to increase residential recycling.	As of February 1992, the City had implemented a weekly curbside recycling program. In subsequent years the program has been enhanced by adding materials and simplifying preparation instructions.
<b>Objectives: Long-Term Plan</b>	<b>Update</b>
I.5. Promote economic reprocessing and reuse of asphalt removed from City streets. Promote the use of recycled asphalt and rubber (from tires) for paving.	The Bureau of Maintenance reuses 100 percent of the asphalt that it removes from City streets. When available, this asphalt is sold to local asphalt plants, generating \$160,000 per year in revenue.  BGS recycles 1,800 tires annually.
I.6. Promote voluntary recycling of major glass, metal, and wood products at construction and demolition sites.	Since 1998 all major construction and demolition sites (over \$50,000 in cost) have been required to recycle most major waste materials.
I.7. Investigate opportunities for waste-to-energy and other waste recovery technologies.	Several City actions have contributed to higher levels of waste-to-energy use. The Bureau of General Services collects vehicle crankcase oil and other used petroleum products and contracts with a disposal company that sells the waste as a crude fuel.  In 1999 BES installed a 200-kilowatt fuel cell power plant at the Columbia Boulevard Wastewater Treatment Plant. The fuel cell utilizes over 20 million cubic feet of digester gas annually.  BES has also increased the sale of anaerobic digester gas to Malarkey Roofing Company by 25 percent. Since 1995, Malarkey has received

360,000 cubic feet of ADG annually.

Portland Parks & Recreation is currently investigating the possibility of using ground-up tires as a base for playing fields.

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I.8. Support activities to help Metro reach its goal of a 56 percent waste reduction in the Metro area by 2010.	In 1991 the City Council established a goal of recycling 60 percent of all solid waste generated by 1997. In 1997 the City shifted the 60 percent target to 2005 and adopted an interim goal of 54 percent recycling by 2000. In 1999 the overall recycling rate in Portland had reached 53.6 percent.
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