Attachment 3

UNITED NATIONS 2005 URBAN ENVIRONMENTAL ACCORDS

ACTION 1 - RENEWABLE ENERGY

Action: Adopt and implement a policy to increase the use of renewable energy to meet 10% of the city's peak load by 2012.

Status: Achieved

Comments:

Pasadena Water and Power is projecting the City's peak electric load to be 310 megawatts (MW) in 2012. To satisfy Action 1, the City would need to provide 31 MW of energy through renewable policies by 2012. Pasadena's current mix of renewable resources, including the Hoover Hydroelectric Facility, is capable of producing 32 MW.

In October 2003, the City set the aggressive goal of meeting 10% of Pasadena's annual retail electric energy (rather than peak load) need with clean, renewable resources by 2010, increasing to at least 20 percent by 2017, therefore the action is achieved.

In all probability, Pasadena can meet this goal without substantial cost or rate impacts; however, it will be difficult and potentially costly to achieve this goal if additional capacity is needed to replace the Hoover Hydroelectric Facility as discussed below.

Recommendations:

1. Renewable Energy Policy – Continue to implement measures supporting the City's goals of achieving 10% renewable energy by 2010 and 20% by 2017.

2. Green Power Municipal – Conduct a feasibility study with financing analysis for phasing in 100% green power at City facilities.

3. Solar Power – Conduct a feasibility study with financing analysis for installing solar power equipment on city-owned facilities (e.g., water reservoirs, parking structures) and explore the inclusion of public school buildings.

Background:

Renewable Energy Policy
Pasadena's current mix of renewable resources is capable of producing 10% of the City's projected 2012 peak electric energy load, counting the 20 MW of capacity from the Hoover Hydroelectric Facility, or 3.5% without counting the Hoover facility. Renewable energy is not defined in the Urban Environmental Accords and under some definitions hydroelectric energy is not considered renewable energy, therefore there is a degree of uncertainty as to whether the City will be recognized for achieving this action. If the Hoover facility energy is not counted, Pasadena will need to add approximately 25

MW of renewable resources to its portfolio by 2012 to achieve a 10% capacity mix. Pasadena has an additional 3.5 MW (1.2% of the current peak demand) of renewable capacity under a contract that is not yet operational.

Wind Power

In May 2003, the City entered into a long-term agreement with PPM Energy, Inc. to buy a 6 MW share in the High Winds Generation Facility in Northern California. The High Winds plant will include 81 state-of-the-art Vestas V80 windmills, lining the ridgetops of the Montezuma Hills. Because of a creative arrangement with the supplier, Pasadena will receive uninterrupted power seven days a week irrespective of the wind conditions. This will make it easier to anticipate expenses and plan for energy needs – even during the peak periods of summer.

The cities of Anaheim, Azusa, Colton, and Glendale are also participating in the project. These cities, including Pasadena, all operate electric utilities and are members of the Southern California Public Power Authority (SCPPA). Working through SCPPA, the cities jointly negotiated contracts for a total of 30 MW of the project output.

Geothermal Energy

Through SCPPA, the City partnered with the cities of Anaheim, Banning, and Glendale to purchase the entire 20 MW output of Ormat's geothermal plant expansions at their Heber and Ormesa facilities for 25 years. The City took delivery of 1 MW from the Ormat Geothermal Energy Project in January 2006. This was the first delivery Pasadena has received from Ormat since committing to a 3 MW share of the project in March 2005. The full project consists of facilities at two separate locations; the Heber Geothermal Facilities Complex and the Ormesa Geothermal Facilities Complex. Both facilities are located near the Salton Sea in California. Once the Heber facility begins operating at full capacity, it will provide 1.5 MW of renewable energy to Pasadena. The remaining 1.5 MW will be generated at the Ormesa facility which is expected to be completed in November 2006. Once the Ormat project is completed and the City begins receiving its full 3 MW share, renewable energy sources will supply about 8% of Pasadena's total energy retail sales.

> *Geothermal energy facilities are those that use the steam created when magma heats water deep below the Earth's surface and forces it up. The steam is then used to create electricity while emitting less than 20% of the carbon dioxide produced by natural gas-fueled power plants.*

Hydroelectric Energy

Pasadena owns a 3 MW hydroelectric facility in Azusa, California that is certified renewable energy. On average, this facility provides less than 1% of Pasadena's energy needs. The Hoover hydroelectric contract provides 20 MW or about 5% of Pasadena's annual energy needs. The actual capacity produced at Hoover varies with maintenance scheduling and water availability.

Land-fill Gas Energy

In late 2003, Pasadena contracted for a 2.25 MW share of the proposed 13.4 MW Chiquita Canyon Landfill generator in Valencia, California, to be developed, owned and operated by Ameresco Chiquita Energy LLC. As of April 2006, Ameresco had not obtained construction permits due to challenges in meeting strict emission requirements of the Southern California Air Quality Management District.

Solar Power Program

Pasadena Water and Power (PWP) offers a Solar Power Program with the objective of promoting the development of renewable energy resources by partnering with several types of electric customers to demonstrate the viability and effectiveness of solar power while helping PWP reduce its long term peak load. PWP provides incentives to residential customers, currently at $3.50/Watt up to a maximum of $8,000 per customer. PWP provides funds for solar installations at schools, non-profit institutions, and municipal buildings. Commercial customers receive technical assistance from PWP to qualify for state and federal incentives. Currently, 44 Pasadena customers have installed solar generation at their facilities totaling 180 kW of solar generation.

Green Power Program

Since 2005, PWP has offered its residential and commercial customers environmentally friendly electricity options such as wind, sun and water. Green Power helps preserve natural resources and does not produce greenhouse gases. Green Power is available for an additional energy charge of 2.5 cents per kilowatt-hour. Currently, 1,300 Pasadena electric customers are participating in the Green Power Program.

Renewable Energy Source	**Renewable Energy Capacity**
High Winds	6 MW
Hydroelectric:	
Azusa	3 MW
Hoover*	20 MW**
Geothermal	3 MW
Landfill Gas (under development)	2.25 MW
Solar Customers	0.180 MW
TOTAL	***34.43MW***
Pasadena 2005 Peak Load	*295 MW*
10% of Peak Load by 2012	*29.5 KW*
Projected 2012 Peak Load	*310 MW*
10% of Peak Load by 2012	*31 KW*
Pasadena 2005 Energy Sales	1,162,660 MWh
10% of 2005 Annual Energy Sales	1,162.6 MWh

* Large Hydroelectric power is not considered renewable energy under some definitions.
** Capactiy varies with water conditions. Maximum contract capacity shown.

UNITED NATIONS 2005 URBAN ENVIRONMENTAL ACCORDS

ACTION 2 - ENERGY EFFICIENCY

Action: Adopt and implement a policy to reduce the city's peak electric load by 10% within seven years through energy efficiency, shifting the timing of energy demands, and conservation measures.

Status: Unknown

Comments:

While technically feasible, achieving this goal may have substantial fiscal and rate impacts that are unknown at this time.

The City's peak energy load in 2005 was 295 megawatts, and the projected peak for 2012 is 310 MW assuming the same level of underlying growth and current conservation programs continue. It is unclear whether the City would need to reduce its peak electric load to 266 MW (10% less than today's 295 MW) or 279 MW (10% less than the projected 2012 demand of 310 MW) to achieve this action. Pasadena would need to achieve a net demand reduction of 31 MW in the former case, and 44 MW for the latter criteria through energy efficiency and conservation measures to meet the 2012 requirement. Additionally, the City has implemented many energy conserving programs throughout the years but it is unclear whether past demand reductions should be credited towards the goal.

Peak load was reduced by 30 Megawatts (MW) in 2001 as a result of customer response to the energy crisis in 2000, nearly enough to meet the 2012 target. One of the major causes of the peak reduction was the aggressive planning and implementation of a variety of energy efficiency and conservation measures by the Pasadena Water and Power Department (PWP). Several new demand-side technologies and programs exist that can help PWP achieve similar results in the future.

The impacts PWP can create through energy conservation programs are limited by the funding available for such programs. The funding available from the Public Benefits Fund is constrained by the diversity of programs that depend on this revenue source (income-qualified assistance programs, energy efficiency programs, research and development, demonstration programs, and renewable energy programs).

A more significant reduction in peak energy load could only be achieved by increasing rate revenues for this purpose. The financial and rate impacts cannot be quantified at this time without conducting a fiscal analysis. By example, a $5/kw-month incentive, would cost PWP $1.8 to $2.7 million annually to maintain, plus initial and ongoing

program implementation costs. Factoring in reduced sales to cover largely fixed costs of delivering power, rates could potentially be adversely impacted by up to 20%.

Recommendations:

1. Cost Effective Energy Efficiency Programs – Use the results from the energy efficiency gains study as well as experience with customer efficiency retrofit measures to design and implement future cost-effective energy efficiency programs.

2. Green Building Energy Efficiency – Amend the Green Building Practices Ordinance for all applicable projects to achieve a minimum 10% energy efficiency over baseline – Title 24).

3. Load Shifting Devices – Conduct a feasibility study for installing devices on municipal and private buildings that reduce the power required to operate equipment and for shifting the equipment usage to off-peak.

4. Time Dependent Electric Rate – Create a "time of use" billing rate that offers lower rates for electric usage during off-peak hours than during peak hours. Other possible rates to consider include tiered energy rates.

5. LED Traffic Signal Lamps Replacement Program – Replace 8 inch incandescent traffic signal indications with 12 inch Light Emitting Diode (LED) indications.

Background:

Pasadena Water and Power Energy Efficiency Measures
PWP has utilized a significant amount of its Public Benefits Charges (PBC) funds since FY2000 for programs that encourage and reward customers who implement energy efficiency measures. Lighting and air conditioning-related retrofits produce the largest energy savings. The City has saved 21,232,751 kilowatt hours, or about 2% of the energy sold during FY2005 as a result of these programs. These savings will continue for several years during the life-cycle of the equipment and measures taken by PWP customers.

PWP's Public Benefits energy efficiency programs utilized by customers have also resulted in a lower demand for power. For FY2005, PWP estimates the total load reduced as a result of its energy efficiency programs to be 1.8 MW, or about 1% of peak load. This reduction in load will also continue for the life-cycle of the efficiency measure installed by the customer, and requires no changes in scheduling or monitoring by the user. Current offerings include Income-Qualified Multifamily Energy Star Compact Fluorescent Lamps; Energy Partnering; High Performance Building; Efficient School Building; and Efficient Municipal Building programs.

Energy Load Order

The California State legislators have taken progressive steps in increasing energy efficiency to reduce air pollution and global warming, as well as increase the reliability of the power transmission system. Recent legislation mandates that all electric utilities follow a "loading order" with respect to addressing new power needs. This order requires utilities to use energy efficiency to first achieve energy needs, conservation second, and renewable energy sources third before procuring fossil-fueled generation. PWP is currently conducting a study to evaluate the potential for achieving further energy efficiency gains from its customers. The results of this study, due in a few months, should provide a picture of where the best opportunities exist within the PWP service area.

Load Shifting Devices

Shifting the timing of energy demands is an important option in managing the City's peak load. Electronic devices can be installed on the customer's electric equipment which PWP can control as needed to reduce peak load. In the 1990's, PWP initiated an air conditioner control program (for split systems). Other utilities currently offer this technology to their customers with an incentive to allow the utility to activate the control on an as needed basis.

Pasadena successfully implemented a Voluntary Load Control Program during the "energy crisis" of 2001. PWP paid large energy customers an incentive to voluntarily turn off equipment when the ISO required Pasadena to reduce its energy load. It is unlikely that customers will voluntarily shut off equipment unless they perceive a strong message that not doing so could result in rolling blackouts.

Technologies exist to not only reduce the power required to operate equipment but to also shift it when the equipment uses its most power. Such technologies effectively shift the highest use of electricity to times when the utility experiences a lower demand for power. PWP's current Ice Bear Thermal Energy Storage (TES) Demonstration Project is measuring the performance of small-scale TES. If this proves feasible and cost-effective, TES could dramatically offset the use of air conditioner compressors during peak hours.

Time Dependent Electric Rate

Pasadena currently lacks a viable electric rate to encourage customers to shift the hours when they use electric equipment. PWP could create a "time of use" (TOU) rate that offers lower rates for electric usage during off-peak hours than during on-peak hours. Other possible rates to consider include tiered energy rates.

LED Traffic Lamps

The California Energy Commission has adopted energy efficiency standards for traffic signal modules and lamps. These standards set minimum efficiencies for products that may be sold in California. They limit sales of new modules and lamps, manufactured on or after March 1, 2003, to certified, energy efficient products, mainly LEDs.

The City's incandescent traffic lights and signals will need to be replaced with LEDs as the incandescent lamps will no longer be available per state requirements. However, replacement of the lamps is complicated by the fact that the City is phasing out 8 inch light indications and replacing them with new 12 inch indications. Federal funds have been used to make some of these replacements.

To date, the City has installed 6,527 LED traffic signal indications. Of the existing 12 inch indications, 1,730 remain to be converted. Of the existing 8 inch indications, 1,873 remain to be converted to 12 inch LED. The LED lamps are recommended to be replaced every five years as opposed to one year for incandescent lamps. This saves time and money in that it requires less man hours to conduct the replacement and requires less energy to operate. The City will aggressively pursue replacing the remaining non-LED light indications.

UNITED NATIONS 2005 URBAN ENVIRONMENTAL ACCORDS

ACTION 3 - CLIMATE CHANGE

Action: Adopt a citywide greenhouse gas reduction plan that reduces the jurisdiction's emissions by 25% by 2030, and which includes a system for accounting and auditing greenhouse gas emissions.

Status: Unknown

Comments:

The topic of greenhouse gas emissions has become a global issue of significant impact requiring substantial analysis to adequately address. The requirement for establishing a gas reduction plan can be accomplished as discussed below. Staff cannot determine at this time whether the requirement to reduce greenhouse gases 25% by 2030 is likely or not. At present, there is no overall plan in the City for addressing greenhouse gas emissions.

Pasadena Water and Power Department (PWP) voluntarily joined the California Climate Action Registry (CCAR) in September 2004 and agreed to report its greenhouse gas (GHG) emissions to the public through CCAR's website (www.climateregistry.org). The CCAR is a non-profit group created by California legislators to promote the reduction of the greenhouse gases that cause global warming. CCAR currently has over 50 members comprised of large companies, municipalities and other government agencies, and non-profit groups. PWP will gain access to the latest information and workshops about greenhouse gas emissions reductions through CCAR.

Currently, PWP is identifying all sources of GHG emissions for 2005 and collecting emission data to be entered in the CCAR online software, with a goal of receiving certification by December 31, 2006.

While the analysis and reporting is not yet complete, it is clear that Pasadena's contractual commitments to coal-fired power generation make it impossible to achieve any substantial GHG reductions (on a percentage basis) through 2027 at a minimum, and probably even further into the future. Pasadena's share of the Intermountain Coal-Fired Unit in Utah is estimated to account for over 80% of PWP's GHG emissions, and these cannot be reduced or eliminated. Although the current contracts are set to expire in 2027, it is likely they will be renewed due to extremely favorable economics, making it virtually impossible to substantially reduce the City's GHG contribution. Assuming the City does not renew or obtain new coal contracts for the purpose of GHG reductions, the cost impact could be in the tens of millions of dollars annually, translating into rate increases in excess of 20%. It may be possible to "mitigate" Pasadena's GHG emissions through procurement of GHG emission offsets or trading credits should a

regional program be developed to support such activities. The potential cost of such a mitigation program is unknown.

Greenhouse Gases

Greenhouse gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Greenhouse gases are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. Carbon dioxide is the most prevalent, contributing to 84.6% of all greenhouse gas emissions. Most carbon dioxide emissions are produced through the burning of fossil fuels for transportation, electricity and industry. Since 1990, GHG emissions in the United States have increased by 15.8%.[1]

Recommendations:

1. Baseline GHG Study - Use the 2005 Greenhouse Gas (GHG) baseline study to develop a coordinated City plan for reducing GHGs. Consider measures for the City to adopt such as:
    a. Increase percentage of electric load received from renewable, nonemitting sources,
    b. Create a Green Fleet program (CNG, plug-in hybrids and all electric, and biodiesel fuel consuming vehicles) for applicable city vehicle purchases and modifications (see Action 14),
    c. Provide incentives for the purchase of electric/hybrid vehicles by private sector (corporate) purchasers, and
    d. Purchase the City's equivalent carbon footprint through environmental credits.

2. Climate Protection Act – Incorporate where feasible the goal of the United States Conference of Mayors Climate Protection Act (7% GHG below 1990 levels by 2012) in concert with the Urban Environmental Accords.

3. Resource Planning and Selection – Incorporate costs/value of GHG emission taxes/credits when evaluating potential power resources.

Background:

PWP has embarked upon reducing GHG and other air pollutants by:

1. implementing energy efficiency incentive programs for customers,
2. adopting a renewable portfolio standard,
3. executing long-term power purchase contracts with wind and geothermal power sources,

[1] Emissions of Greenhouse Gases in the United States 2004 - Executive Summary, Energy Information Administration Report #: DOE/EIA-0573(2004/es), Released Date: March 2006

4. investing substantial capital in local generation improvements that dramatically reduce fuel consumption and emissions, and
5. participating in the highly efficient Magnolia natural gas combined cycle plant.

Implementation of the Power Distribution Master Plan will lead to further efficiencies that decrease PWP net demand for energy. Additionally, PWP is proactively searching for ways to increase its power purchases from other renewable energy sources (see Action 1 & 2).

Using 2005 as a baseline, PWP will be reporting annual direct and indirect GHG emissions from all of its operations, including local (Broadway and Glenarm) and remote power plants; power purchases and sales; transmission and distribution losses for power; transmission losses for natural gas; leakages of sulfur hexafluoride gases from power distribution electrical equipment; vehicles and construction equipment; and energy usage for deliveries at municipal buildings. Starting in 2006, PWP will report GHG emissions according to the CCAR protocol, which will be certified independently by CCAR. This will establish PWP's GHG emissions baseline for tracking progress in reducing emissions.

Government Action

Hydrochloroflurocarbon production will be significantly reduced as a result of restrictions placed on its use in air conditioning units. In 2010, the federal Environmental Protection Agency will phase out the most common air conditioning refrigerant in the world, HCFC-22. Production of chlorofluorocarbons (CFCs) ceased under the terms of the Montreal Protocol in 1995. Now, CFC refrigerants are available only from reclamation and only for servicing systems already in use.

At the California State level, Executive Order S-3-05 (effective June 1, 2005) mandates the following greenhouse gas emission reduction targets:

- by 2010, reduce GHG emissions to 2000 levels
- by 2020, reduce GHG emissions to 1990 levels
- by 2050, and reduce GHG emissions to 80 percent below 1990 level

California State Assembly Bill 32, the Global Warming Solutions Act of 2006, proposes the establishment of a mandatory limit on California's global warming pollution reflective of 1990 levels by 2020. The bill also proposes the California Air Resources Board to establish a mandatory reporting system to track and monitor emission levels and requires CARB to develop various compliance options and mechanisms. The bill was amended in the Senate in April 2006.

The South Coast Air Quality Management District (SCAQMD) is proposing to lower the nitrous oxide (NOx) emission limits for new boilers, water heaters and process heaters. The proposed rule would lower the NOx emission limit to 20 ppm for most new manufactured units. The NOx emission limit for new pool heaters less than 400,000 Btu/hour would remain at 55 ppm. The NOx emission limit for smaller tank type water heaters less than 120,000 Btu/hour is proposed to be 15 ppm.

The SCAQMD completed a comprehensive air quality compliance audit for the PWP Glenarm and Broadway power plant for the year 2004. The audit found the power plant to be in compliance and notably reported NOx emissions within 0.08 accuracy.

Kyoto Protocol

The objective of the Kyoto Protocol was to stabilize and reduce greenhouse gas (GHG) emissions, mitigate climate change, and promote sustainable development for developed countries. The international agreement was adopted in December 1997 in Japan and went into effect on February 16, 2005. The Protocol sets binding targets for reducing GHG emissions *by 2012 to 7% below 1990 levels*. If the United States had ratified the Protocol, its emission target reduction would have been 7% below 1990 levels or 22.8% adjusted for the time period between 1990 and 2004. As of early 2005, 141 countries had ratified the Kyoto Protocol.

U.S. Mayors Climate Protection Agreement

In June 2005 mayors from around the country gathered to endorse the U.S. Mayors Climate Protection Agreement. This good-faith agreement holds signing cities to the target emissions levels set in the Kyoto Protocol (meet or exceed the target of reducing global warming pollution levels to 7% below 1990 levels by 2012). In order to achieve this goal, participating cities agree to take actions in reducing GHG emission by adopting the 12 suggested measures, or cities may develop innovative ideas of their own. As of July 14, 2006, 266 mayors representing over 47 million Americans have signed the Climate Protection Agreement. The U.S. Mayors Climate Protection Agreement is intended only for United States cities, and sets a more stringent standard on greenhouse gas emissions than the U.N. Urban Environmental Accords (see comparison below).

Comparison - Climate Protection Act & UN Urban Environmental Accords

The following compares the U.S. Mayors Climate Protection 12 optional strategies (italicized) for reducing GHG to the United Nations Urban Environmental Accords Action Items (bulleted).

1. *Inventory global warming emissions in City operations and in the community, set reduction targets and create an action plan.*
   - Similar to Urban Accord Action 3: Reduce greenhouse gases (although Climate Agreement requires achievement 18 years sooner)
2. *Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities.*
   - Similar to Urban Accord Action 8: Promote density, mixed use, and coordinate with transportation and open space
3. *Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling and public transit.*
   - Similar to Urban Accord Action 15: Reduce single occupancy vehicle commute trips

4. *Increase the use of clean, alternative energy by, for example, investing in "green tags," advocating for the development of renewable energy resources, recovering landfill methane for energy production, and supporting the use of waste to energy technology.*
   - Similar to Urban Accord Action 1: Reduction of peak electric load by increasing the purchase of power generated by renewable sources
5. *Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money.*
   - Similar to Urban Accord Action 2: Reduce peak electric load through energy efficiency and conservation
6. *Purchase only Energy Star equipment and appliances for City use.*
   - Differs from the Urban Accords as it specifies a specific product requirement. However, complying would also fulfill Urban Accord Action 2: Reduce peak electric load through energy efficiency and conservation. Further, this can easily be accomplished by incorporating a broader purchasing policy by the city (Buy Green). (See discussion for Action 5.)
7. *Practice and promote sustainable building practices using the U.S. Green Building Council's LEED program or a similar system.*
   - Similar to Urban Accord Action 7: Green building rating system
8. *Increase the average fuel efficiency of municipal fleet vehicles; reduce the number of vehicles; launch an employee education program including anti-idling messages; convert diesel vehicles to bio-diesel.*
   - Similar to Urban Accord Action 14: Emissions controls on single occupancy vehicles to reduce particulate and smog-forming emissions
   - Differs from the Urban Accords as it also includes an education component and a specific requirement to convert diesel to bio-diesel
9. *Evaluate opportunities to increase pump efficiency in water and wastewater systems; recover wastewater treatment methane for energy production.*
   - Differs from Urban Accords as it is a specific requirement. However, complying would also fulfill Urban Accord 19: Reduce consumption of water and Urban Accord 1: Increase renewable energy
10. *Increase recycling rates in City operations and in the community.*
    - Similar to Urban Accord Action 6: Implement recycling programs & reducing solid waste
11. *Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO2.*
    - Similar to Urban Accord Action 11: Tree canopy
12. *Help educate the public, schools, other jurisdictions, professional associations, business and industry about reducing global warming pollution.*
    - Differs from the Urban Accords as it includes an education component

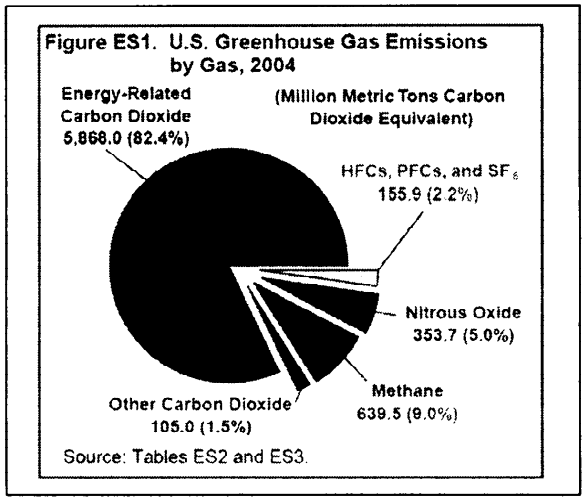
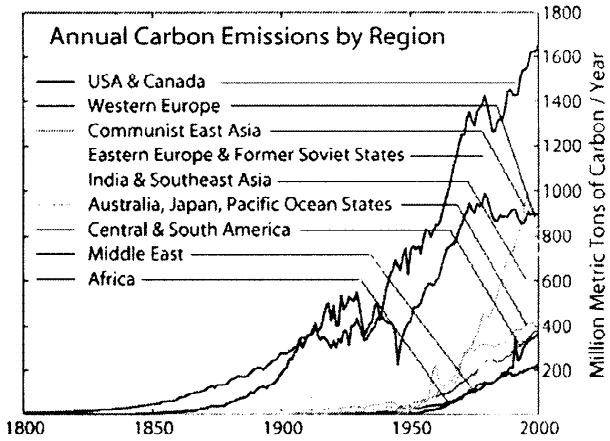


Figure ES1. U.S. Greenhouse Gas Emissions by Gas, 2004
(Million Metric Tons Carbon Dioxide Equivalent)
Energy-Related Carbon Dioxide 5,868.0 (82.4%)
HFCs, PFCs, and SF6 155.9 (2.2%)
Nitrous Oxide 353.7 (5.0%)
Methane 639.5 (9.0%)
Other Carbon Dioxide 105.0 (1.5%)
Source: Tables ES2 and ES3.


Annual Carbon Emissions by Region
USA & Canada
Western Europe
Communist East Asia
Eastern Europe & Former Soviet States
India & Southeast Asia
Australia, Japan, Pacific Ocean States
Central & South America
Middle East
Africa
1800
1850
1900
1950
2000
200
400
600
800
1000
1200
1400
1600
1800
Million Metric Tons of Carbon / Year

UNITED NATIONS 2005 URBAN ENVIRONMENTAL ACCORDS

ACTION 4 - ZERO WASTE

Action: Establish a policy to achieve zero waste to landfills and incinerators by 2040.

Status: Likely

Comments:

For the 2004 Biannual Report, the City reported to the California Integrated Waste Management Board (CIWMB) a diversion rate of 62%. The diversion rate for 2003 was 54%. The 2004 Disposal Modification Request recorded an additional decrease of 20,313 tons of disposal. Implementation of the recommendations will result in reduced waste and greater diversion above and beyond the 62% diversion reported in the 2004 Annual Report to the CIWMB.

Recommendations:

1. Construction & Debris Ordinance – Amend PMC 8.62 to increase the required 50% construction and demolition debris diversion rate to 60%, and permit only 20% of that to be achieved by inert debris recycling.

   "Inert debris" means solid material that does not contain hazardous waste, radioactive waste, medical waste, soluble pollutants, or decomposable matter.

2. Franchise Ordinance – Amend PMC 8.61 to reduce the number of franchisees and limit new franchises to ensure compliance and quality control. Implement increased diversion requirements for franchises establishing a goal of reaching a 75% diversion rate for the collection of solid waste or pay liquidated damages on Recycling Shortfall Tonnage.

3. Multi-Family and Commercial Recycling – Develop an administrative procedure to ensure development and construction of new structures are in compliance with the Zoning Code Section 17.40.120 in regards to on-site recycling areas.

4. Business Recycling Plan – Evaluate the waste stream of City serviced commercial accounts to establish increased recycling opportunities. Create and implement a plan to increase City serviced commercial accounts providing waste and recycling services. Request a plan from franchises outlining strategy to increase commercial recycling as a condition of license renewal.

5. Food Waste Recycling Program – Implement a Food Waste Recycling Program for restaurants within the City.

Business waste disposal accounts for 49% of all waste disposed in the City and 20% of that is food waste. Household waste disposal accounts for 51% of all disposal and 20% of that is food waste.

6. E- Waste Recycling – Establish a permanent electronic waste (e-waste) collection center in the City where residents can bring their electronic and universal waste to be recycled. Train MASH workers to staff the collection center, collect and place e-waste on pallets and place in collection container. This program will also help with groundwater protection in that e-waste will be diverted from landfills thereby reducing the possibility of harmful substances reaching water sources.

7. Grocery Bags – Working in collaboration with local grocery stores and supermarkets, set a reduction target of a given quantity of grocery bags.

Background:

The recommendations are in effect initial components to support establishing a policy to achieve zero waste by 2040. The recommendations address the greatest waste stream components; food waste, business waste, and commercial waste. Food waste alone accounts for 40% of the total waste stream for the business and residential sector combined. By implementing a food waste recycling program for restaurants, a significant percentage of the waste stream will be diverted. Establishing increased diversion requirements for Franchise haulers would further support the zero waste goal. The recommendation is to raise the diversion rate of haulers up to 75%, resulting in a 25% increase from the current requirement.

Reaching zero waste by 2040 will be impacted by the developments of conversion technology in the State of California and the ability to convert waste to fuel; increased food recycling opportunities; and increased commercial recycling provided by the franchise haulers. In addition to establishing City policies and programs, the City of Pasadena should encourage and support state level initiatives that will minimize the production of waste.

California State Legislation
Current State Assembly Bill AB939 requires cities to divert 50% of solid waste. SB420 would additionally require the source reduction and recycling plan to provide for the diversion of 75% of solid waste after January 1, 2015, thereby imposing a state-mandate on local agencies.

California State Assembly Bill AB2449 will require all California grocery stores to create an in-store recycling program for the collection and recycling of plastic bags, and provide consumers with a bag reuse opportunity. AB 2449 passed the Senate Committee on Environmental Quality on June 19, 2006 with a 5 to 2 vote.

Pasadena Municipal Code Chapter 8.61
Effective November 18, 2002, the Solid Waste Collection Franchise System Ordinance requires diversion of a minimum 50% for the collection of solid waste or Haulers must pay liquidated damages on recycling shortfall tonnage. The City of Pasadena has 37 licensed Franchise Haulers servicing the commercial and multifamily (5 or more units) sector. The ordinance has resulted in haulers increasing their diversion rate to 50% or higher.

Administratively, 37 haulers is time and cost consuming for the City, with each hauler submitting reports on their respective diversion levels that must be reviewed and enforced by staff each month. By limiting or sun-setting the number of haulers, City services will be able to better monitor the stringent requirements in support of zero waste.

Pasadena Municipal Code Chapter 8.62
Effective December 18, 2002 the City's Construction and Demolition Ordinance requires diversion of a minimum 50% of construction and demolition debris on covered projects within the City. Applicants are required to submit a Waste Management Plan Application outlining the plan to recycle and/or reuse the construction and demolition waste generated from the applicant project. A security deposit of 3% of the project value is required and fully refunded following submittal of monthly reports confirming that 50% diversion was reached. An administrative review fee is assessed to fund the review and processing of applications. All licensed franchise haulers are required to report the tonnage of construction and debris material hauled and recycled on their monthly reports to the City Franchise Manager.

Pasadena Municipal Code - Refuse Storage Facilities
Currently projects are reviewed through the plan check process to ensure compliance with the Zoning Code Section 17.40.120 in regards to on-site recycling areas, but there is no final inspection on the recycling element to ensure compliance at project completion. Staff will develop an administrative procedure to guarantee compliance.

> *Applicability - A refuse storage area for the collection of trash and recycled goods shall be provided at the time any structure is constructed.*
>
> *Recycling Area - In each required refuse storage area, space shall be provided for recyclable materials. A separate bin for each type of recyclable material collected in the area in which the site is located shall be provided. The bins shall be clearly marked as to the types of recyclable materials which are to be placed in the bins, and a list of materials for which the bin is provided shall be attached to the bin.*

Plastic Grocery Bags
Grocery stores distribute 60% of the state's plastic bags, or about 32 million bags daily but less than 4% of those bags are recycled. It costs $20.5 million to landfill these bags annually, and estimated state litter collection costs are in excess of $303.2 million.

Bags contribute significantly to the litter stream - a Los Angeles River Cleanup found that plastic film and bags made up 45% of the litter volume in and around the Los Angeles River. Plastic bags are estimated to take several centuries, perhaps a millennia, to decompose.

Every year, plastic debris – such as bags - kill animals through entanglement, starvation, suffocation, and ingestion. To date, 267 species around the world have been affected by plastic debris, which is estimated to kill over 100,000 marine mammals and turtles each year. Roughly 80% of marine debris originates from land-based activities, and plastics make up 90% of floating marine debris. [2]

[2] Californians Against Waste

UNITED NATIONS 2005 URBAN ENVIRONMENTAL ACCORDS

ACTION 5 - PRODUCT WASTE

Action: Adopt a citywide law that reduces the use of a disposable, toxic, or non-renewable product category by at least 50% in seven years.

Status: Likely

Comments:

The City spends millions of dollars each year procuring goods and services. By exercising its economic power, Pasadena can encourage market development of new products which are safer, healthier and more environmentally friendly. Controlling the goods and services purchased by the City will not only reduce disposables but create a healthier environment. A "Buy Green" plan could combat the increased use of toxic chemicals through the purchase and use of safer janitorial and landscaping products in City buildings and facilities. The procurement of recycled and environmentally responsible office supplies and equipment could be mandated to help satisfy this action.

Recommendations:

1. Manufacturer Responsibility – Pass a resolution that supports statewide legislation and local initiatives requiring manufacturers to take responsibility for collecting and recycling their products at the end of the products' use.

2. Buy Green – Create and implement a municipal procurement plan to ensure that city government workers are not exposed to hazardous chemicals or materials and to conserve natural resources. (See Action 16 Toxics Reduction.)

Background:

A green purchasing mandate would require that the City to conscientiously purchase recycled content products, energy-efficient products and renewable energy technologies, alternative fuel vehicles and alternative fuels, biobased products, environmentally preferable products and services, and non-ozone depleting substances. The benefits of a green purchasing mandate include energy conservation, water resource protection, cost savings, and improved protection of employees.

In the past, it has been difficult and time-consuming to create guidelines for green procurement. However, today there are numerous guidelines in place that the City can use as a basis for creating a green procurement program, including the American Society for Testing and Materials (ASTM) Guidance, Green Seal Standard for Industrial and Institutional Cleaners (GS-37), and King County's (Washington State) sample procurement policy. Further, both the EPA and the Department of the Interior provide