



Los Angeles **LA**  
**D**  
**W**  
**P** Department of Water and Power

## SUSTAINABILITY PLAN

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**PREPARED PURSUANT TO:  
MAYORAL EXECUTIVE DIRECTIVE #10**

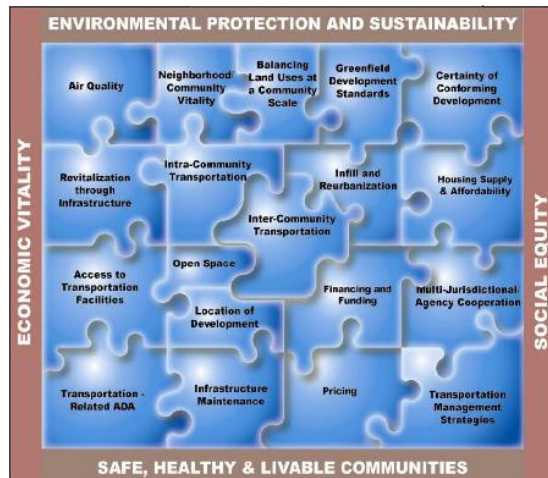
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**AUGUST 20, 2009**



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# LADWP SUSTAINABILITY POLICY & STRATEGIES

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## POLICY STATEMENT AND COMMITMENT

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The Los Angeles Department of Water and Power (LADWP) is committed to sustainable practices and the stewardship of the environment to exemplify how local government can support and enhance local and global natural resources, while continuing to nourish a vibrant, diverse, and healthy economy for the people of Los Angeles. LADWP will implement this Sustainability Plan by assisting customers with renewable energy choices, water conservation and energy efficiency programs, and by modifying its internal operations to incorporate sustainable practices in all aspects of its ventures, including design and construction, operation of municipal water and power facilities, fleet management, procurement and recycling practices and incorporate the Sustainability Plan framework into strategic planning documents.

As we move towards a sustainable society, we will need to ensure that the ecological, economic, and social aspects of our lives no longer compete with each other. Rather, it will be necessary for these elements to function as complementary pieces of a tightly integrated society.

*Sustainability means meeting the needs of current generations without impairing the ability of future generations to meet their own needs. Sustainability is an important strategy for the long-term health of the people, economy and environment of California.*

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## CITY LEADERSHIP

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This Sustainability Plan will implement the Mayor's Executive Directive No. 10, dated July 18, 2007.  
(ATTACHMENT 1)





## SUSTAINABILITY STRATEGIES

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- DEVELOP AND INCREASE THE USE OF RENEWABLE ENERGY AND RESOURCES
- IMPLEMENT THE CITY'S SUSTAINABLE BUILDING POLICIES AT ALL LADWP FACILITIES
- REVIEW DEPARTMENTAL PRACTICES FOR OPPORTUNITIES TO IMPROVE OVERALL OPERATIONAL SUSTAINABILITY AND STREAMLINE WITH STRATEGIC PLANS
- ENGAGE OUR CUSTOMERS TO TAKE A MORE ACTIVE ROLE IN REDUCING OVERALL ENERGY AND WATER USE
- DESIGNATE A DEPARTMENT SUSTAINABILITY LIASON TO ASSIST IN COORDINATION OF CITY EFFORTS
- MONITOR AND MEASURE PROGRESS THROUGH AN ANNUAL SUSTAINABILITY ASSESSMENT REPORT





# SUSTAINABILITY VISION

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## MAYOR VILLARAIGOSA'S VISION OF SUSTAINABILITY

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The time has arrived where people consider how they can meet their daily needs without compromising a desirable future for the next generations. Individuals and groups across Los Angeles are calling upon local government to enact policies and take actions that are aligned with the principles and concepts of sustainability. Local government officials must play their part in reinventing our institutions to help communities and residents achieve these goals.

Mayor Antonio R. Villaraigosa has taken this leadership role seriously by issuing directives for City Departments to follow well-accepted principles and concepts of sustainability. [Executive Directive \(ED\) Number 10 was issued July 18, 2007](#). ED 10 clearly articulates the Mayor's vision of transforming Los Angeles into the cleanest and greenest big city in the country by advancing all feasible

sustainable practices. This directive requires all City Departments to adopt individual Sustainability Plans to guide their respective functions, practices and policies.

As proprietary department for the City of LA, LADWP has taken the directive from the Mayor and developed the proposed Departmental Sustainability Plan, for implementation as part of the City's overall program to transform Los Angeles.

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## ...ABOUT SUSTAINABILITY

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Sustainability can be defined as the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs. In all aspects of our lives we use and consume resources, such as water, trees, oil, food, energy, and land. Some of these resources are termed "renewable" because more can be produced. Other resources are not renewable, but are finite, like oil, water, and land. Non-renewable resources must be used sparingly to avoid depletion of these valuable assets. The term "sustainability" means minimizing our impact on the planet by using less energy and water, generating less solid waste, generating less pollution and greenhouse gases, while planting more trees, improving access to open space and maintaining a healthy community.



Among some of the most pressing issues society faces today are global warming, high fuel prices, securing adequate water supplies, poverty and unemployment. Sustainability is critical to Los Angeles' future. Only a green, clean Los Angeles will be able to ensure the quality of life, economy, culture, public health and environment of its people, businesses and neighborhoods. With sustainable decision-making as a goal, the City of Los Angeles will re-establish the needed balance between environmental, social, and economic factors.

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### **LIAISON**

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LADWP is committed to the development and implementation of sustainable programs. Assistant General Manager Lorraine Paskett, who oversees all aspects of the Environmental Affairs Division, has been designated to serve as the LADWP's liaison to the Mayor's Sustainability Practices Cabinet. Mark Sedlacek, Director of Environmental Services, will assist Ms. Paskett with this assignment by coordinating the day-to-day aspects of the Sustainability Plan.

The Sustainability Liaison determines the Department objectives, sets targets, prioritizes and coordinates initiatives, monitors/evaluates, and oversees submittal of the annual report to the Mayor's office. The Liaison also insures that the implementation teams have the necessary tools, and resources to accomplish the Department specific programs.

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### **ORGANIZATION STRUCTURE**

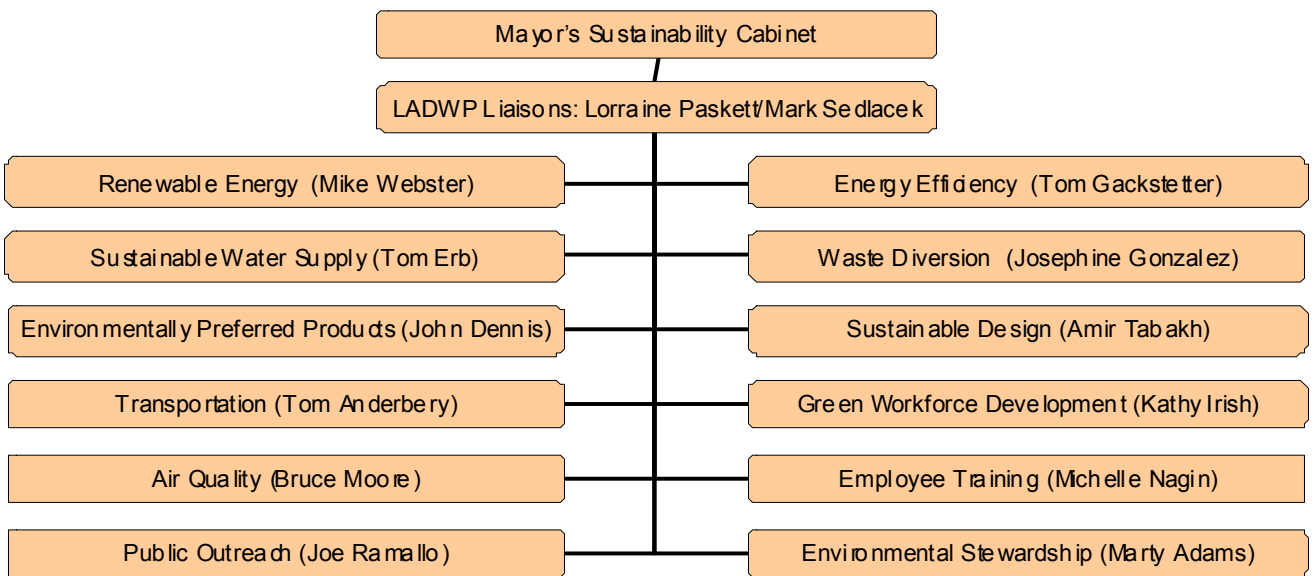
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The management infrastructure illustrated on page seven (7) demonstrates the commitment of LADWP's leadership in developing and implementing this Sustainability Plan.

The organizational structure that LADWP has developed allows staff from many different divisions within the Department to embrace sustainability and to assist in the development of programs to meet LADWP sustainability goals and commitments. For each resource category identified in the proposed Sustainability Plan, LADWP has designed an individual to act in a lead capacity, with appropriate support staff. These implementation teams form the heart of the sustainability efforts. In many cases, they are staffed by LADWP employees from many divisions to ensure that the correct people are assigned to tasks that will fulfill the Department's sustainability objectives.



# Management Organization Chart





# PROGRAM ELEMENTS

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## COMPONENTS

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### 1. RENEWABLE ENERGY

Objectives

- ▶ *Continue to expand opportunities to increase the use of renewable energy to meet the 2010 target of 20 percent and the long-term goal of 40 percent by 2020*

Objectives

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### 2. ENERGY CONSERVATION AND EFFICIENCY

Objectives

- ▶ *Promote energy conservation at all LADWP facilities and operations and through our customer base*

Objectives

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### 3. SUSTAINABLE WATER SUPPLY

Objectives

- ▶ *Implement the LADWP Water Supply Action Plan*
- ▶ *Meet all new demand for water through a combination of water conservation and water recycling*

Objectives

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### 4. SUSTAINABLE DESIGN

Objectives

- ▶ *Integrate sustainable planning, design, and construction practices into all LADWP projects*

Objectives

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- ▶ *Integrate sustainable practices into written contracts*



## 5. GREEN JOBS AND THE ECONOMY

Objectives

► *Expand opportunities to include green jobs through contracting processes*

**Objectives**

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## 6. WASTE MANAGEMENT, REDUCTION AND RECYCLING

Objectives

► *Maintain and examine opportunities to increase current efforts on recycling and source reduction at all facilities and operations*

**Objectives**

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## 7. PROCUREMENT AND USE OF ENVIRONMENTALLY PREFERRED PRODUCTS

Objectives

► *Increase purchasing and use of environmentally responsible products*

**Objectives** ► *Integrate sustainable practices into internal policies, business processes, and written agreements*

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## 8. AIR QUALITY

Objectives

► *Quantify and develop accurate GHG emissions inventories*

**Objectives** ► *Reduce GHG emissions 35% below 1990 levels by 2030*

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## 9. TRANSPORTATION

Objectives

► *Meet or exceed current efforts in “Greening the Fleet” by exploring new opportunities in technology advancement*

**Objectives** ► *Reduce emissions from LADWP fleet vehicles by replacing older, higher polluting vehicles with greener vehicles*



## 10. ENVIRONMENTAL STEWARDSHIP

Objectives

▶ *Promote environmental stewardship through existing LADWP programs and projects and measure progress*

Objectives

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## 11. TRAINING AND OUTREACH

Objectives

▶ *Provide periodic training to staff on environmental policies, practices, and programs*

Objectives

▶ *Integrate sustainable policies into all public outreach and operational interaction*

▶ *Provide periodic sustainability awareness training to LADWP employees and the greater community*

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# 1. RENEWABLE ENERGY

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## OVERVIEW OF RENEWABLE SOURCES OF ENERGY

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### **Wind energy**

Wind turbines use strong, steady wind to create electricity. Wind power emits no pollution and has very little impact on the land. Wind energy can be produced anywhere the wind blows with consistent force.



### **Solar Power**

Electricity from solar energy can be produced from solar photovoltaic cells that convert sun light into direct current electricity or by capturing heat from the sun and converting it into electricity.



### **Geothermal energy**

Geothermal energy is generated by converting hot water or steam from deep beneath the Earth's surface into electricity. Geothermal plants emit very little air pollution and have minimal impact on the environment.



### **Biomass energy**

Organic matter, called biomass, is burned in an incinerator to produce energy. Biomass can also be converted into a combustible gas, allowing for greater efficiency and cleaner performance



### **Hydropower**

Dams provide electricity by channeling water down a chute and over a turbine linked to a generator. Hydropower is considered renewable as long as it has no adverse impact on water quality and on the wildlife habitat.





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## **CITY OF LOS ANGELES RENEWABLE ENERGY POLICIES**

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Cities and countries across the world are struggling with the devastating effects of climate change and how to reduce their contribution to this global crisis. For decades, the City of Los Angeles – home to more than 4 million people – has been synonymous with the smog and sprawl at the heart of this crisis. In 2004, the City emitted over 50 million tons of carbon dioxide into the atmosphere – more than the entire country of Sweden.

Confronted with the reality that climate change diminishes the quality of life for everyone who lives and works in America's second largest city, in 2007 Mayor Antonio Villaraigosa released the Green LA initiative in 2007 to reduce the City's carbon emissions to 35 percent below 1990 levels. The cornerstone of the aggressive plan is to increase LADWP's Renewables Portfolio Standard to 35 percent by 2020. On July 2, 2009, the Mayor announced a new goal for LADWP to deliver 40% renewable power by 2020. Under the Mayor's tenure, LADWP has more than tripled its renewable energy portfolio in less than 4 years to 12 percent at the end of 2008.

The City's peak electricity demand particularly from residential customers has risen to all-time highs in Los Angeles, while stricter state regulations have added pressure on LADWP to diversify its energy mix away from carbon based energy resources. LADWP now faces a challenge to find a path to reliable, renewable energy on a system-wide scale.

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### **LADWP RENEWABLE ENERGY POLICY AND INTEGRATED RESOURCES PLAN**

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LADWP is committed to a Renewable Portfolio Standard (RPS) that seeks to boost the amount of renewable energy that the utility provides its customers to 20 percent of retail electric sales by 2010. The long-term goal, as identified in the Mayor's Green LA Climate Action Plan, is to achieve 35% percent renewables by 2020. On July 2, 2009, the Mayor announced a new goal for LADWP to deliver 40% renewable power by 2020.

These goals will require the City to expand its supply of renewable resources, including wind, solar, geothermal, biomass, and small hydroelectric power. The benefits of increasing renewable power supplies include reducing greenhouse gas emissions, improving air quality, providing sustainable energy resources, providing a hedge against market fluctuations of fuel costs, and reducing dependence on foreign sources of fuel.

In achieve the goals of increasing green power LADWP has developed an Integrated Resource Plan (IRP) to provide a long-term policy framework for how LADWP will meet its power customers' future energy demands. The key objectives of the plan are to provide reliable service to our customers at a competitive price and remain committed to environmental leadership. The strategies underlying the plan are aimed at decreasing dependence on fossil fuels and reducing emissions of greenhouse gases, while maintaining a reliable and competitively priced supply of power to accommodate customer energy needs, particularly during periods of peak demand.

EXISTING PRACTICES

**TABLE 1-1 SUMMARY OF GREEN POWER ACHIEVEMENTS AT LADWP**

► LADWP ACHIEVED HIGHEST RANKINGS FOR IMPLEMENTATION OF SOLAR POWER BY A MUNICIPAL UTILITY, AS RANKED BY THE SOLAR ELECTRIC POWER ASSOCIATION

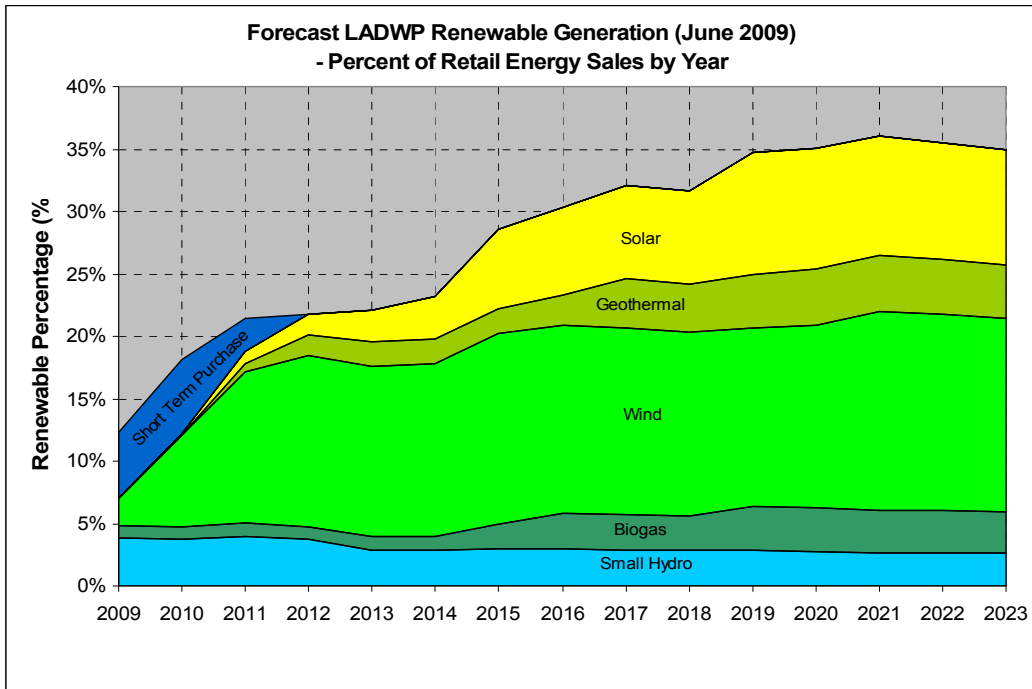
► IN THREE YEARS, LADWP TRIPLED ITS RENEWABLE POWER FROM 3% TO 12% OF TOTAL GENERATION AT THE END OF 2008 AND IS WELL ON ITS WAY TO MEET THE TARGET OF 20% BY 2010

► LADWP HAS ON-GOING EFFORTS TO PURCHASE AND DEVELOP PROJECTS FOR EXPANSION OF GREEN POWER, SUCH AS GEOTHERMAL, WIND, AND SOLAR

► LADWP HAS SECURED LONG-TERM CONTRACTS FOR POWER GENERATION FROM WIND, GEOTHERMAL, LANDFILL GAS, AND SMALL HYDRO FACILITIES

► IN JUNE 2009 LADWP COMPLETED CONSTRUCTION AND BEGAN COMMERCIAL OPERATION OF THE PINE TREE WIND FARM

FORECAST LADWP RENEWABLE GENERATION (JUNE 2009)



## Renewable Portfolio Standard Project List

- LADWP currently obtains 12% of its energy from renewable resources.
- Planned renewables by the end of 2009:

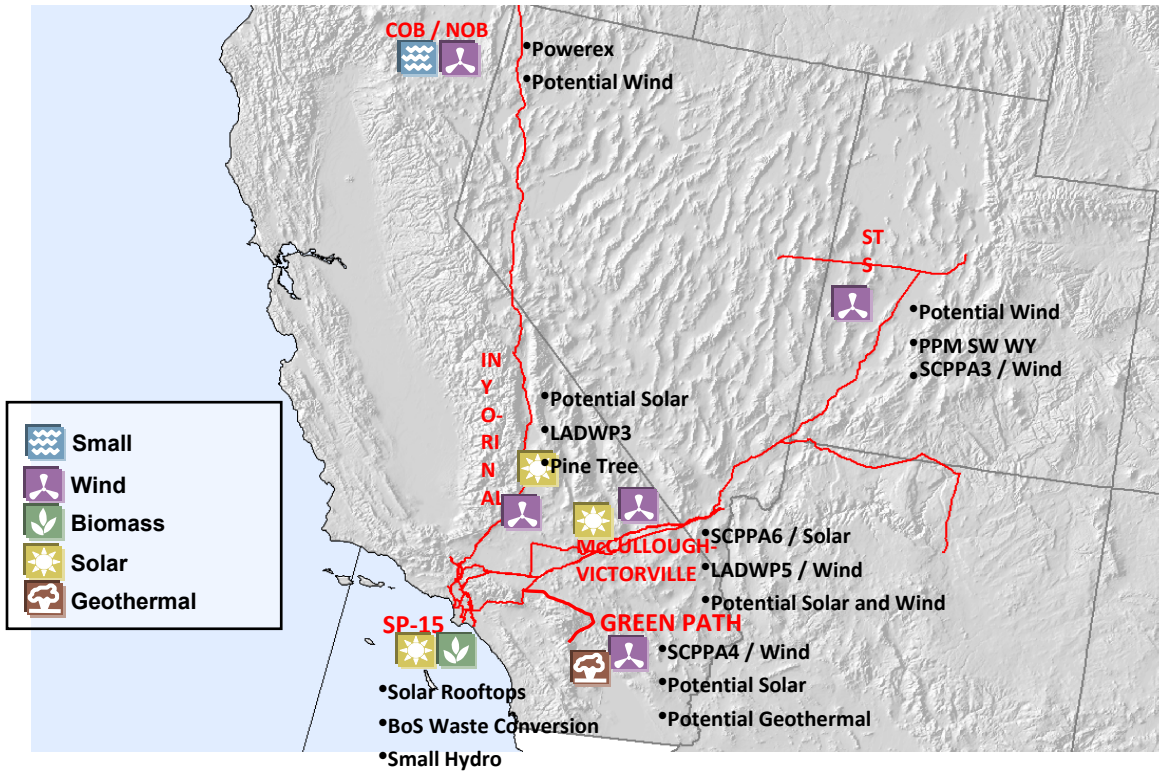
Geothermal	1.4%
Waste-To-Energy	0.8%
Solar	1.9%
Biomass	0.2%
Wind	10.5%
<b>Total</b>	<b>14.8%</b>

- Renewable resources by 2010 will exceed 20%



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### RENEWABLE PORTFOLIO STANDARD PROPOSED RENEWABLE ENERGY PROJECTS AND LADWP TRANSMISSION



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## STATE SOLAR INITIATIVE

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SB1, the California Solar Initiative requires all California electric utilities to implement a Solar Incentive Program by January 1, 2008 to run through December 31, 2016. The Statewide goal of SB1 is to install 3,000 megawatts (MW) of net-metered solar photovoltaic energy systems in California with Statewide expenditures not to exceed \$3,350,800,000.

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## MEETING THE CHALLENGE: THE MAYOR'S LA SOLAR PLAN

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The City's peak electricity demand particularly from residential customers has risen to all-time highs in Los Angeles, while stricter state regulations have added pressure on the City to move quickly to diversify its energy mix away from carbon-based energy resources. LADWP now faces a challenge to find a path to reliable, renewable energy on a system-wide scale. The answer to this challenge lies partially in the source of our City's problem: The 276 days of sunshine in Los Angeles. While long, hot summer days drive peak energy demand, the sun's power and our climate make solar power Los Angeles' most abundant natural resource.

The Mayor's "Solar LA" is simply the largest solar plan undertaken by any single city in the world – with the utility-owned portion of the plan alone representing more solar capacity than in all of California today. LA Solar is a multi-year investment designed to expand solar power in Los Angeles to 10% of the City's energy resources by 2020. By 2020, the plan will lower carbon emissions in Los Angeles and increase the City's solar portfolio by nearly 100-fold. This far-reaching plan calls for achieving as much as 1,280 megawatts (MW) of solar power or 2.6 million megawatt-hours of energy — or enough to serve about 430,000 households. That amount of solar power would displace about 1.6 million tons of CO<sub>2</sub>, which equates to taking more than 280,000 cars off the road. LA Solar sets forth a framework to transform LADWP into national leader in solar power generation.

Solar LA also represents a major opportunity to turn environmental solutions into economic opportunities for Angelenos by investing in and stimulating the local economy. When the installation of 10 megawatt (MW) of solar annually can create 200 to 400 jobs, the opportunity for green-collar and blue-collar jobs in Los Angeles is substantial and reaches across a broad range of occupations: research and development, manufacturing, installation, maintenance and repair. LA Solar is an ambitious plan that will engage Los Angeles residents and businesses to create a cleaner, greener utility. LA Solar will maximize solar generation resources in Los Angeles by:

- Expanding programs to reach customers from every community in the City,
- Unlocking the potential of the private sector, and
- Making smart investments in larger-scale solar projects.

Solar LA will help alleviate the stress on LADWP's distribution infrastructure, and help mitigate the City's vulnerability to natural gas volatility and reduce LADWP's historic dependence on fossil fuel generation. The Solar LA plan consists of three primary components: Programs to boost residential and commercial customer solar systems; LADWP-built solar projects; and power purchase agreements for large-scale solar projects located outside the Los Angeles basin.

## 1. Customer Solar Programs – *Total goal: Installation of 380 MW by 2020*



► **Expand Residential Program:** Using \$313 million in power revenue funds set aside in support of the state’s SB1 program for solar projects, LADWP will leverage its incentive programs to encourage DWP ratepayers to install solar panels on their roofs. In low-income communities, LADWP will provide solar systems at substantially lower cost to a limited number of qualified customers. LADWP will also look to extend to residential customers low-interest loans for the installation of solar systems now available to commercial customers. In an effort to

widen customer access to solar power, LADWP anticipates that a number of innovative financing models will be explored including loans made to residential customers that are repaid through property taxes. The goal is to install 130 MW of customer owned solar systems by 2016.

► **New Feed-in Tariff (FiT):** A significant challenge to developing solar projects in Los Angeles has been the long-standing prohibition against non-LADWP entities from selling electricity to other customers on the local grid. A Feed-in-Tariff (FiT) program would help to bridge this problem by allowing a solar developer in the City to sell wholesale power directly to LADWP through a long-term contract between the private seller and LADWP. These third-party sellers could take advantage of tax incentives of 30-60 percent of the installation costs, and after 5-8 years may chose from several options including selling the solar systems to LADWP. The FiT goal is to install 150 MW of solar systems by 2016.

► **Establish a New SunShares Program:** For residential customers interested in investing in solar power, but without the means or opportunity to install their own solar systems, SunShares will give customers the opportunity to purchase shares of an LADWP solar power plant. SunShares would leverage the collective purchase power of groups of customers to fund commercially-sized solar power plants built and operated by LADWP. Customers, in turn, would receive their “dividend” through net-metering credits on their own energy bills earned on their share of a centralized solar plant. The goal of SunShares is to install 100 MW of solar systems by 2020.

## 2. LADWP-built Solar Projects in LA – *Goal: Installation of 400 MW by 2014*

► Installing solar systems on rooftops, reservoirs and parking lots on City-owned property, the LADWP-built projects are a critical step towards ensuring future generations of Angelenos will not have to rely on dirty, polluting energy sources. Under this program, LADWP will install 400 MW of solar systems by 2014. This utility-built component alone would make the City of Los Angeles the national leader in solar energy generation.

## 3. Large-Scale Solar Projects – *Goal: Installation of 500 MW by 2020*

► Taking advantage of some of the world’s best solar resource areas in the nearby Mojave Desert, LADWP will procure 500 MW of utility-scale solar power projects developed under agreements with third-party solar developers. These “out-of-basin” solar energy systems will leverage existing

infrastructure wherever possible, including feeding into LADWP-owned transmission lines in the area. These projects will be developed by private developers through power purchase agreements that give LADWP the option to purchase the plants after about eight years. By tapping its most abundant natural resource, the City of Los Angeles seeks to create a home-grown solution to an energy and public health problem facing cities across the country.

While “going solar” will require a significant up-front investment by LADWP; it will also require that the solar industry do its part to lower the relative cost of solar energy to make this ambitious plan viable. Moreover, proposed Federal and State mandates for Los Angeles to increase its renewable energy portfolio will require the City to invest now for the long-term or face stiff financial penalties and continued challenges to its jurisdictional integrity. Under these pressures, Solar LA will provide Los Angeles with the best option for a reliable, self-sufficient and diverse energy portfolio by shifting away from fossil fuels.



Solar LA serves as more than a blueprint to a greener LADWP. By sparking a broad movement through a sustained commitment to solar energy across a city of 4 million residents, the plan primes the pump for Los Angeles to become a world leader in the solar industry and delivers on the vision of re-making Los Angeles into the cleanest, greenest big city in America.

LADWP has the most solar electric capacity among all public power utilities nationwide, according to a survey of the utility solar electricity market. The Solar Electric Power Association's (SEPA) first two annual "Top Ten Utility Solar Integration Rankings" are the results of SEPA's U.S. Utility Solar Electricity Market Surveys in 2007 and 2008, which compared U.S. electric utilities by the total amount of solar electricity installed in their service territories. LADWP ranked highest among public power utilities with the most solar capacity on the customer side of the meter and for overall total solar capacity for both years.

### **Benefits of the Solar Plan**

- The City must take proactive steps to reduce its carbon footprint by permanently eliminating greenhouse gas emissions attributed to fossil fuel power generation to avoid imposition of punitive legislative or regulatory measures (e.g. AB 32).
- The City must ensure its future energy security and independence by maintaining a diversified energy resource portfolio and identifying new clean and sustainable electricity resources today.
- The City can affirmatively impact the cost of solar power through a sustained commitment to developing utility scale power projects that will:
  - Promote technological innovation and competition among solar providers*
  - Emphasize economies of scale*
  - Foster economic development and local job creation*
  - Reduce transmission costs and line losses associated with imported power.*
  - Mitigate risk and lower cost through application of tax subsidies, accelerated depreciation and other creative financial approaches*

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## LADWP'S WIND PROGRAM

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LADWP is constructing and operating wind farms in select locations to import clean power to Los Angeles. These projects are designed and constructed under the oversight of LADWP. The following lists some of the projects already completed or in design and/or construction that contribute to LADWP's renewable portfolio standard:

Pine Tree Wind Farm – In January 2008, LADWP broke ground on Pine Tree Wind Farm; in August, the first of 80 wind turbine generators was erected LADWP's Pine Tree Wind Farm in the Tehachapi Mountains. Pine Tree will be the largest municipally owned and operated wind farm in the nation, delivering 120 megawatts of wind power to Los Angeles and will contribute 1.4% renewable power towards LADWP's goal of 20% by 2010. The clean energy will displace at least 200,000 tons of greenhouse gas emissions and will cut 8 tons of nitrous oxides and 11 tons of carbon monoxide. Each 1.5 megawatt turbine stands 257 feet high, weighs approximately 95 tons and features 120 foot-long blades attached to a hub. Construction of Pine Tree Wind Farm was completed and commercial operation began in June 2009.



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## LADWP'S GEOTHERMAL PROGRAM

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Geothermal power is an excellent source for renewable energy. It is a base-load energy that can provide continuous and consistent energy supply with very high (approximately ninety to ninety-five percent) capacity factor; it produces very little or no air emissions and pollutants.

LADWP is currently pursuing development of geothermal resources in two fronts: development of resources in the LADWP owned lands, and purchase of energy from geothermal developers. LADWP is working with Imperial Irrigation District (IID) and Southern California Power Purchase Authority (SCPPA) in a joint effort to develop up to 200MW (100MW to LADWP) geothermal energy in the lands owned by LADWP and IID near the Salton Sea. LADWP is negotiating or in the process to start negotiations on power purchase agreements with geothermal developers responding to the Request for Proposals by the LADWP or SCPPA (in which LADWP is a major participant). The proposed projects are in various locations, including California and Utah. Current project negotiations can lead to approximately 150MW geothermal power delivered to LADWP by 2016.

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## LADWP STRATEGIES TO MAKE LA THE CLEANEST AND GREENEST CITY IN THE NATION

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### ***TABLE 1-2 ACTIONS TO IMPLEMENT GREEN POWER OBJECTIVES***

***▶ INCREASE RENEWABLE ENERGY TO 20% BY 2010 BY INCREASING SOLAR, WIND, BIOMASS AND PREPARE AN ANNUAL PROGRESS REPORT TOWARDS ACHIEVEMENT OF GOAL***

***▶ IMPLEMENT THE MAYOR'S SOLAR PLAN FOR LOS ANGELES***

***▶ DO NOT RENEW CONTRACTS FOR POWER IMPORTS FROM COAL-FIRED PLANTS***

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## 2. ENERGY CONSERVATION AND EFFICIENCY

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### Objectives

► *Promote energy conservation at all LADWP facilities and operations*

### Objectives



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### ENERGY EFFICIENCY AND DEMAND-SIDE MANAGEMENT OVERVIEW

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*Demand-Side Management* typically refers to electric utility initiated programs and activities designed to affect customer use of electricity in ways that are mutually beneficial to the customer and the utility. Demand-Side Management options include conservation, customer generation, new and expanded use of electricity, strategic marketing initiatives, and traditional and price-responsive load management. These programs are designed to influence the time, pattern, and magnitude of participating customers' electrical loads. As a result of these initiatives, LADWP customers are able to use less energy, thereby lowering their electric bills, and enabling LADWP to keep its peak demand as low as possible.




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**LA POLICY ON ENERGY EFFICIENCY**

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The Mayor's has identified several policies and directives for LADWP to implement to achieve energy efficiency, including the following:

- ▶ Provide two compact fluorescent light bulbs to each City household
- ▶ Increase the level and types of customer rebates for energy efficient appliances, windows, lighting, heating and cooling systems
- ▶ Expand the distribution of energy efficient refrigerators to qualified customers

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**LADWP ENERGY EFFICIENCY AND DEMAND-SIDE MANAGEMENT POLICIES**

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In 2006, the LADWP Commissioners (Board) recommended as part of the Integrated Resource Plan that energy efficiency be made a priority and that LADWP achieve the maximum cost-effective energy savings potential as expeditiously as possible. In 2009, LADWP surpassed its previous energy efficiency record, and is on-track to reach a new savings high of 274 gigawatt-hours (gWH) – enough energy to power almost 46,000 homes for a year and reduce carbon emissions by more than 153,000 metric tons.

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**EXISTING LADWP FINANCIAL INCENTIVE AND INFORMATION PROGRAMS**

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LADWP's objective is to implement cost-effective energy efficiency and demand-side management programs that provide the maximum environmental and financial benefits to our ratepayers and the residents of Los Angeles. LADWP offers a variety of programs to encourage residential, commercial, institutional, and industrial customers to implement energy efficiency technologies and strategies.

LADWP currently offers the following financial incentives programs for customers that are replacing older equipment and appliances to install higher efficiency equipment (above what would be required by code). The amount of the financial incentive is higher for the most efficient technologies.

Non-Residential	Residential
Commercial Lighting Efficiency Offer (CLEO)	Consumer Rebate Program (CRP)
Commercial HVAC Program	Refrigerator Recycling Program (RETIRE)
Chiller Efficiency Program (CEP)	Trees for a Green LA (TFGLA)
Small Business Rate Intervention	CFL Distribution
Energy Audits	Affordable Housing Projects



LADWP also develops literature which is used during education and outreach events and programs. “*Flex your Power*” has been one of the most successful public education programs the Department has conducted. To further the goals of energy efficiency partnerships have been formed with various Departments and agencies, including the LA City Departments of Aging and Bureau of Sanitation, and the Environmental Protection Agency for their Energy Star Program.

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#### EXISTING PRACTICES

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**TABLE 2-1 SUMMARY OF EXISTING ENERGY EFFICIENCY PROGRAMS AT LADWP**

▶ **LADWP HAS COMPLETED ENERGY USE SURVEYS AT MORE THAN 475 FACILITIES**

▶ **LADWP PROVIDES INCENTIVES FOR RESIDENTIAL AND NON-RESIDENTIAL ENERGY EFFICIENCY PROGRAMS**

▶ **LADWP PROVIDES INFORMATION TO CUSTOMERS AND COLLABORATES WITH OTHER EDUCATIONAL ENTITIES**

▶ **LADWP SPONSORS PUBLIC EVENTS TO DISTRIBUTE ENERGY EFFICIENCY EDUCATIONAL MATERIALS AND PROMOTE ENERGY EFFICIENCY**

#### ***Improving Energy Efficiency at City Departments***

LADWP has completed energy use surveys at more than 475 City facilities. LADWP is in the process of compiling its findings and recommendations to the General Services Department on the results. The energy use surveys include identification of measures eligible for LADWP incentives, plus additional energy use reduction measures.

***Griffith Park Holiday Lights*** - 2008 marked another year for LADWP to support the City’s goal of becoming the “greenest City in the US”, by converting the entire festival lighting to energy saving LED light bulbs. The LED lights utilize only 1/3 the energy of traditional light bulbs. In addition, the Holiday Light Festival is being powered by a clean, energy fuel cell. The festival went “green” by introducing “walking only” nights. The festival route is closed to vehicles on these nights.



***TABLE 2-2 ACTIONS TO IMPLEMENT THE ENERGY CONSERVATION AND EFFICIENCY OBJECTIVES***

***▶ CONTINUE TO SEEK OUT OPPORTUNITIES TO INCREASE ENERGY EFFICIENCY BOTH INTERNALLY AND EXTERNALLY***

***▶ APPLY FOR GRANT FUNDING FOR NEW INCENTIVE PROGRAMS TO ACHIEVE ENERGY CONSERVATION AND EFFICIENCY***

***▶ CONTINUE TO PROVIDE FINANCIAL INCENTIVES FOR CUSTOMERS AND EXPAND ON EXISTING PROGRAMS***





### 3. SUSTAINABLE WATER SUPPLY

Objectives

► *Implement the LADWP Water Supply Action Plan*

► *Meet all new water demand through a combination of water conservation and water recycling*

Objectives



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#### OVERVIEW OF WATER SUPPLY CHALLENGES IN LOS ANGELES

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Having grown-up in Southern California, Mayor Villaraigosa knows that Los Angeles always faces a potential drought due to the areas inherent dry weather and a lack of ground water and other sustainable water sources. In 2007, a boiling point was reached as several factors converged to create water shortages from all major sources, sparking the need to rethink the future water supplies of Los Angeles. That year Los Angeles recorded the lowest snow pack in the Eastern Sierra and the driest weather. A further stress to our water supplies is a 2008 Federal Court ruling that limits exports from the Sacramento-San Joaquin Delta by as much as one-third to protect the delta smelt.

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#### CURRENT AND FUTURE WATER DEMAND

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To provide context for the strategies for water resources policies, it is useful to first look at the City's past, current and future water demand. Water use in LA peaked in 1986, at just over 700,000 acre-feet per year (AFY) followed by five years of severe drought, widespread water shortages, and the implementation of mandatory conservation measures. LADWP determined that increased water demands will occur as warmer weather results in shorter winters, and earlier runoff. There are substantial challenges to capture and transport water supplies and about available storage. Effects of extreme climate variability can result in potential flood events, and more frequent drought periods. Consequences of these issues include potential water quality impacts, including increased sediment loading and turbidity.

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## CITY OF LOS ANGELES SUSTAINABLE WATER RESOURCES POLICIES

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In 2007 Mayor Villaraigosa called on all Angelenos to help with their fair share and conserve water, with a goal of reducing water use by 10%. To help with that effort, the Mayor announced the return of the Drought Busters Program, designed to educate City residents on how to conserve water.

In May 2008, Mayor Villaraigosa unveiled the report “Securing L.A.’s Water Supply”, known as the City of Los Angeles Water Supply Action Plan (Water Plan). The Water Plan outlines strategies to increase the sustainability of the City’s water supply.

The Water Plan outlines goals and initiatives for the following strategies:

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### LADWP’S FIVE (5) STRATEGIES TO DEVELOP A SUSTAINABLE WATER SUPPLY

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#### **Increase Water Conservation**

Conserving water is vital to the sustainability of the region. Los Angeles will develop 50,000 acre-feet of new sustainable water conservation by 2030. This strategy builds on increasing water conservation through reduction of outdoor water use and new technology.

#### **Maximize Water Recycling**

As the City’s imported water supply becomes more critical, so does the need to develop local, sustainable water resources. This strategy focuses on increasing the total amount of recycled water used in Los Angeles six-fold by 2019 –from the current 1% to 6% of annual water demand. The goal is 50,000 acre-feet of recycled water delivered annually by 2019.

**Enhance Stormwater Capture.** Stormwater supplies are a largely underutilized local resource that has the potential to lessen demand for imported water supplies. This strategy focuses on increasing groundwater recharge by retrofitting the Big Tujunga Dam and other large-scale projects, and working with other City departments on smaller-scale projects

#### **Accelerate Clean-up of the San Fernando Groundwater Basin**

The San Fernando Basin (SFB) is the City’s primary local water source, historically providing 15 percent of the total water supply. However, groundwater contamination has severely impacted LADWP’s ability to fully utilize this valuable resource. Currently, local groundwater only provides approximately 11 percent of the City’s water supply. This strategy is focuses on cleaning up the contaminated groundwater basin to allow the City to fully utilize their groundwater supplies.

#### **Expand Groundwater Storage**

LADWP is investigating opportunities for increased storage of groundwater, creating a cost-effective, environmentally friendly reserve of water resources in case of extreme drought or other emergencies.



The following describes in more detail the five (5) strategies for securing L.A.'s water supply.



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### STRATEGY 1: INCREASE WATER CONSERVATION

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LADWP's first strategy strives to meet the additional demand for water through water conservation. The Department has significantly increased rebates for a variety of water conserving hardware retrofits, paying the installed cost (labor and materials) of the retrofit in many cases.

This includes many commercial measures (high efficiency water-saving plumbing fixtures) as well as residential high efficiency clothes washers. The shift in focus resulted from sustained LADWP ultra-low-flush toilet programs that resulted in the replacement of 1.27 million non-water saving toilets. The high degree of market saturation led to these programs being ramped down in December 2006. Programmatic success and aggressive water conservation in LA have resulted in the City using the same amount of water today as 25 years ago, despite a population increase of nearly 1 million people.

Residential water conservation is also taking a new direction – outdoor water efficiency. A “smart” irrigation controller program is under development to deliver water savings from landscape irrigation.

#### ***TABLE 3-1 SUMMARY OF EXISTING LADWEP WATER CONSERVATION PROGRAMS***

***RESIDENTIAL HIGH EFFICIENCY CLOTHES WASHER REBATE PROGRAM***

***COMMERCIAL REBATE PROGRAM***

***TECHNICAL ASSISTANCE PROGRAM***

***RESIDENTIAL SMART CONTROLLER DIRECT INSTALL PROGRAM (UNDER DEVELOPMENT)***

***CITY PARK IRRIGATION EFFICIENCY PROGRAM***

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### ***Improving Outdoor Water Conservation at City Facilities***

Approximately 30 percent of total water is used outdoors, equivalent to about 190,000 AFY. Within the various customer groups, single-family residential customers use about 40 percent of their water outdoors; governmental customers use more than 50 percent of their water outdoors; and commercial and industrial customers use 22 percent and 19 percent respectively. Multi-family residential customers use about 16 percent of their water outdoors.



LADWP is working closely with City staff in assessing and improving water use at City facilities. Recent attention has been focused on landscape water use, and LADWP staff has secured external grant funding to leverage LADWP financial investments. “Smart” irrigation controllers have demonstrated significant water savings potential and have become a focal point for parks throughout the City. LADWP has also launched the multi-year City Park Irrigation Efficiency Program, funded annually to retrofit three City parks with smart controllers and upgraded irrigation systems.



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## **STRATEGY 2: WATER RECYLCING**

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Efforts to develop other sustainable water resources that are locally available include expanding the use of recycled, highly treated wastewater. LADWP, in partnership with the Bureau of Sanitation (BOS), is working towards expanding the use of recycled water. BOS is responsible for the City’s wastewater treatment with four in-basin plants producing a total of 463 million gallons per day (mgd).

Los Angeles has used recycled water since 1979 for irrigation and industrial purposes at locations such as Griffith Park, Mount Sinai and Forest Lawn Memorial Parks. Since the early 1990s, the city has constructed numerous projects that replace potable water with treated wastewater for irrigation, industrial, seawater barrier, and environmental beneficial purposes. In the Sepulveda Basin, the City uses recycled water

from the Donald C. Tillman Water Reclamation Plan for its golf courses, beneficial reuse to the LA River, Lake Balboa, the Wildlife Lake, and the Japanese Gardens.

LADWP and BOS are preparing a detailed Recycled Water Master Plan that will outline the steps and costs of boosting our recycled water level to 6 percent of total demand for the City. The Master Plan will provide a blueprint for reaching this goal by expanding the existing recycled water pipeline system and using recycled water for groundwater replenishment.




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**STRATEGY 3: STORMWATER CAPTURE AND RECHARGE**

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As the City’s imported water supply becomes more limited, the need for developing local, sustainable water resources becomes critical. One of the key factors impacting local groundwater supply is increased urbanization over the last several decades. As more and more pavement covers the earth, less amount of open space is available for water to filter through the soil to ground water. The capture and re-use of reclaimed wastewater (stormwater) reduces the region’s dependence on imported water and reduces the volume of wastewater that is discharged to the ocean. LADWP is moving forward with several stormwater capture projects with the goal of increasing long-term groundwater recharge.

Groundwater recharge, or the natural process of increasing an aquifer’s water content through percolation of surface water, is done in the SFB using captured storm water and/or imported water. LADWP coordinates with the Los Angeles County Department of Public Works (LACDPW) to recharge the SFB through the spreading of native water. Flood control facilities are the primary means to divert native runoff into the spreading ground facilities.



LADWP is in partnerships on a number of stormwater and re-charge projects that are listed below:

<i><b>TABLE 3-2 LADWP CURRENT STORMWATER PROJECTS</b></i>
<i><b>BIG TUJUNGA DAM RETROFIT</b></i>
<i><b>HANSEN SPREADING GROUNDS PROJECT</b></i>
<i><b>TUJUNGA SPREADING GROUNDS PROJECT</b></i>

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**STRATEGY 4: CLEANUP OF LOCAL GROUNDWATER SUPPLY**

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Los Angeles has historically relied upon local groundwater for 15 percent of its total water supply, and more during emergencies and drought years. The City’s water rights pertain to groundwater basins in the San Fernando Valley as well as the Central and West Coast Basins. However,

groundwater contamination in the San Fernando Valley, where the majority of the City's groundwater supply is produced, has severely limited water available for pumping.

***Groundwater Contamination***

The San Fernando Basin, the largest source of local groundwater, is contaminated with industrial solvents from decades of manufacturing and improper disposal as far back as WWII. For the past 20 years, LADWP has worked with the Environmental Protection Agency (EPA) to address the contamination. The North Hollywood Operable Unit has been treating the contaminated groundwater. But the remedy has failed to address the contamination, which has become worse and has required LADWP to shutdown 40 percent of its groundwater wells.



***Goals and Objectives***

The LADWP's goal is to maintain the long-term safety and reliability of this local supply. LADWP will continue to work with EPA, the Los Angeles Regional Water Quality Control Board, and the State Department of Toxic Substances Control, to identify polluters and perform cleanup activities. LADWP is also performing a comprehensive groundwater study to identify the scope and magnitude of the contamination, and develop treatment solutions. The following table lists some of LADWP's completed, current, and planned projects involving the SFB.

***TABLE 3-3 LADWP LOCAL GROUND WATER IMPROVEMENT PROJECTS***

***REMEDIAL INVESTIGATION AND CLEANUP OF THE SAN FERNANDO BASIN***

***USE OF THE NORTH HOLLYWOOD TREATMENT FACILITY***

***THE USE OF POLLOCK WELLS TREATMENT PLANT***

***GROUND WATER SYSTEM IMPROVEMENT STUDY***

***CHROMIUM TREATMENT RESEARCH***

***SHELDON/ARLETA LANDFILL RECHARGE RESTORATION PROJECT –TUJUNGA SPREADING GROUNDS***

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**STRATEGY 5: EXPANSION OF GROUNDWATER STORAGE**

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***Conjunctive Use***

LADWP operates its wells in a manner that optimizes the available production of its ground water basins. This is done through conjunctive use, which is the coordinated use of surface and ground water supplies. Furthermore, conjunctive use can be implemented to enable LADWP to purchase MWD supplies at a reduced unit cost, when available. LADWP is currently working with the Water Replenishment District of Southern California to develop a conjunctive use project in the Central Basin. LADWP is entitled to 15,000 AF of ground water annually from the Central Basin and extracts this from two production well fields. Plans for construction of new production wells in the Central Basin to replace some of the older wells that are approaching the end of their useful life are underway.

***TABLE 3-4 ACTIONS TO IMPLEMENT LADWP SUSTAINABLE WATER SUPPLY OBJECTIVES******WATER CONSERVATION***

- Initiate a program for smart irrigation controller installations.
- Retrofit three (3) City parks per year with smart irrigation

***WATER RECYCLING***

- Develop 50,000 acre-feet per year of recycled water deliveries by 2019, through a combination of 35,000 AF irrigation and industrial use through purple pipes, and 15,000 AF from groundwater replenishment of advanced treated wastewater.
- Initiate development of a Recycled Water Master Plan
- Conduct stakeholder outreach on recycled water issues, including safety

***GROUNDWATER CLEANUP***

- Initiate Groundwater System Improvement Study
- Implement temporary wellhead treatment to restore groundwater pumping capacity

***STORMWATER CAPTURE***

- Work with LA County Flood Control to complete restoration of Big Tujunga Dam
- Work with LA County Flood Control to complete improvements at Hansen Spreading Grounds
- Initiate design activities for improvements at Tujunga Spreading Grounds
- Work with Bureau of Engineering, Bureau of Sanitation, and other organizations to advance green street and neighborhood retrofit demonstration projects

***GROUNDWATER STORAGE***

- Continue to work to advance agreements for groundwater storage in the Central and West Coast Basins
- Continue involvement in the Antelope Valley Groundwater Adjudication process
- Investigate opportunities for groundwater storage along the Los Angeles Aqueduct



## 4. SUSTAINABLE DESIGN



Objectives

Objectives

- ▶ *Integrate sustainable planning, design, and construction practices into all LADWP facilities*
- ▶ *Integrate sustainable practices into internal policies, business processes, and written agreements/contracts*
- ▶ *Collaborate with LADWP and city staff to develop policies and codes for a more sustainable use of utility services by the public and private sector*



### DESCRIPTION OF SUSTAINABLE DESIGN

Green Building, or sustainable design, is an approach to building design, construction and operation that considers the building, its property, and place in the community as a whole system to create economical, environmentally sound and healthy spaces in which to live and work. Green buildings are designed to reduce environmental impacts on the site, and reduce water and energy consumption while creating a healthy indoor environment.



*Why Build Green??? —There are over 76 million residential building and nearly 5 million commercial buildings in the U.S., which cost over \$240 billion a year to operate.*

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## CITY POLICY ON SUSTAINABLE DESIGN

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In May 2007 Mayor Antonio Villaraigosa issued a Climate Action Plan to reduce greenhouse gas emissions 35% below 1990 levels by 2030. The Plan specifically references the importance of reducing the environmental impacts of buildings. The City of Los Angeles has estimated that its buildings consume up to two-thirds of the total electricity. In addition, they use significant amounts of water and other natural resources, and contribute to 12% of landfill waste. Overall, buildings constitute over 32% of the city's annual carbon dioxide emissions of 52 million metric tonnes.

Given that the City permits thousands of new construction and remodel projects, municipal government is a significant driver of green building systems. The U.S. Green Building Council (USGBC) is a national non-profit organization that created the Leadership in Energy and Environmental Design (LEED) Green Building Rating system, a third party certification program, which promotes a market transformation to green buildings. The City of Los Angeles has adopted incentives for sustainably-designed projects, including priority processing services for buildings that meet LEED Silver standards.

The City's Planning Department in cooperation with LADWP has established a LA Green Building Program to guide and support private sector development. Affected city departments met on a weekly basis, resulting in a program that increases minimum building requirements and provides incentives for higher levels of green building construction. LADWP's support of the Green Building Program is established; LADWP offers incentives for LEED certified buildings and offers expedited water/electrical service planning and construction for LEED Silver certified buildings.

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## LADWP ENVIRONMENTAL ENGINEERING GROUP

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LADWP added a new group to the Environmental Affairs (EA) Division in late 2008 to specifically focus on environmental engineering. With this new expertise in place, LADWP has been able to influence local building codes, specification and standards to promote green design and construction, assess and monitor the effectiveness of building retrofit projects, educate city staff, developers and the community about green buildings, and adopt sustainability principles and green building policies for both public and private facilities.

The EA Engineering group is in charge of water conservation design and monitoring the retrofit of about 305 LADWP facilities to meet water conservation objectives in accordance with the Mayor's directives. The goal is to retrofit all LADWP facilities with High Efficiency Plumbing Fixtures



(HEPF) by September 2010. This retrofit project is being conducted in a joint effort by LADWP EA Engineering and Integrated Support Services (ISS) construction personnel.

In order to bring the same water conservation savings to the rest of the city, the EA Engineering group proposed a HEPF ordinance which was approved by LADWP Board on April 7, 2009, the Energy and Environment Committee on June 16, 2009, the Planning and Land Use Management (PLUM) Committee on July 7, 2009, and was finally adopted by the City Council on July 22, 2009. The effective date is December 1, 2009.

The EA Engineering group is also working on a number of water conservation and energy efficiency efforts consistent with LADWP's Leadership in Energy and Environmental Design (LEED) strategic objectives. Attainment of these goals will ensure that new buildings are designed, and existing buildings are retrofitted, in a more efficient and more sustainable building operations. Accordingly, the EA Engineering group is conducting research to determine the feasibility for possible adoption and implementation of a gray water ordinance for the reuse of this water for non-potable purposes.

In summary, the EA Engineering group reviews and makes recommendations regarding new products, identifies and resolves environmental, regulatory, legislative, and code issues associated with the design, construction and operation of water and energy-saving products with respect to Plumbing, Mechanical, Electrical, Solar, Building and Energy Codes.

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#### EXISTING PRACTICES

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***TABLE 4-1. CURRENT SUSTAINABLE DESIGN PRACTICES AT DWP***

***► LADWP IN COOPERATION WITH OTHER CITY DEPARTMENTS DEVELOPED THE LA GREEN BUILDING PROGRAM AND ADOPTS THE GREEN BUILDING ORDINANCE AND COUNCIL MANDATED POLICIES FOR LEED***

***► MARCH 2007 LADWP BOARD ADOPTS A POLICY FOR ALL NEW BUILDINGS TO ATTAIN LEED SILVER CERTIFICATION***

***► LADWP PROVIDES INCENTIVES FOR EXPEDITED WATER/ELECTRICAL SERVICE FOR LEED SILVER CERTIFIED BUILDINGS***

***► LADWP PARTICIPATES IN MULTI-DEPARTMENT GREEN BUILDING TEAM TASK FORCE***

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#### FINANCIAL INCENTIVE PROGRAMS AVAILABLE

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***► In March 2007, the Board adopted a cooperative agreement between LADWP and CRA/LA to fund the energy efficiency lighting portion of qualified projects participating in the Commercial***



Façade and Commercial Rehabilitation Projects. This is an ongoing program with an agreement term of three years. The maximum funding amount is \$500,000 per year over three years.

▶ Section 23.141 of the Los Angeles Administrative Code was adopted to expand the definition of projects that qualify for loan funding to explicitly include water conservation, energy efficiency, solar, and utility infrastructure projects. This is an ongoing program in which LADWP focuses its efforts on small and medium size businesses and residential customers interested in solar system installation.

▶ LADWP has an ongoing, cooperative agreement with the CRA, Housing Authority, and Housing Department LADWP will provide a maximum of \$10 million in utility infrastructure, electric EE, water conservation loans, water and EE services, products and rebates for qualified projects participating in the City's Permanent Supportive Housing Program (PSHP).

▶ Housing agreement between Housing Department and LADWP - this is to encourage the sustainable development of affordable multifamily housing unit developments within the City of Los Angeles which will support the local economy, create jobs and promote LADWP products and services. This is an ongoing program. Housing is the lead. The term of the agreement is nine years. Funding shall not exceed \$10 million over the nine-year period.

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#### STRATEGIES TO IMPLEMENT SUSTAINABLE DESIGN OBJECTIVE

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#### ***TABLE 4-2 ACTIONS TO IMPLEMENT THE SUSTAINABLE BUILDING OBJECTIVES***

***▶ ALLOCATE STAFF TIME FOR GREEN BUILDING TRAINING AND PROVIDE BUDGET FOR IT***

***▶ MAKE GREEN BUILDING PART OF STANDARD PROCEDURES; MODIFY CONTRACT LANGUAGE, RFP, SPECIFICATION AND CONTRACT LANGUAGE***

***▶ DEVELOP SHORT AND LONG-TERM ACTIONS AND EVALUATE IN YEARLY REPORT***

***▶ CONTINUE PROVIDING INCENTIVES FOR BUILDING OWNERS AND DEVELOPERS TO DESIGN AND BUILD GREEN***

***▶ DEVELOP SUSTAINABLE GUIDELINES FOR ALL CONSTRUCTION PROJECTS***

***▶ PILOT GREEN BUILDING PROJECTS AS MODELS; CERTIFY A FEW NEW BUILDINGS AND EXISTING BUILDINGS USING THE LEED GREEN BUILDING RATING SYSTEM***



## 5. GREEN JOBS AND THE ECONOMY

### Objectives

► *Promote local development and production of green technology including identifying opportunities to locate green jobs in LA*

### Objectives

► *Continue supporting and developing citywide programs to further green jobs and educational programs for green workforce*

### *Status of the National Economy*

It is evident: our economy is in serious trouble. Falling home prices, foreclosures, bank failures, struggling automakers, a weaker dollar, wildly fluctuating gas prices, as well as mass layoffs are all indicators of a serious economic downturn. What's worse is that this economic strain is predicated to continue for at least another year. At the same time, we face a climate crisis that will require expanding investments in new energy infrastructure, cleaner sources of power, and more efficient use of electricity and fuels in order to cut global warming pollution.

There is no doubt that at the heart of economic revitalization is a low carbon future. We must fundamentally change the way we produce and consume energy and drastically reduce our dependence on oil. A strategy to invest in a "green economy" will create more and better jobs, when compared to a path of rising dependence on energy imports and effects from global climate change.



### *The Evolving Definition of Green Collar Jobs*

In the course of the last year, the term "green collar job" has taken hold. Presidential candidates have used it and the media uses it in headlines on a regular basis. Unfortunately there is no agreed upon definition for the term. As a result it's very difficult to estimate how many green collar jobs exist or are likely to be created with various green economy plans. As research continues, a more accurate definition will allow studies to accurately determine how many "green jobs" will be created over the next decade. The most current information is presented here from a wide collection of materials.



- According to the US Conference of Mayors 751,051 collar jobs currently exist
- The American Solar Energy Society, a nonprofit organization set on increasing the use of sustainable technologies, reports that 8.5 million Americans currently hold "green collar" jobs in renewable energy or energy efficient industries and predicting that number to go up to 40 million by 2030 due to increased demand in alternative energy sources.

To understand the discrepancy between these numbers, one has to dig into how each group defines green collar jobs. At the moment, there is also no definitive list of industries or, job functions that come together to define the green economy. One distinct fact that is coming to the surface is that green-collar jobs are different from green jobs and both of these may differ from green processes... *A green job is one that helps the environment, whereas a green collar job is one that is good for the worker and the environment A green process is a sustainable way of manufacturing a product that in itself is not green* It seems to be clear however, that "green" is the way to go. A bull market has begun to develop in green careers and opportunities for job seekers and career changers. Careers promoting environmental responsibility that are now considered cutting edge will become mainstream within a decade. The growth in green careers will be like the Internet boom, which not only created new jobs, but also significantly impacted the overall economy.

#### ***Potential for Economic Recovery through Green Jobs at Federal and State Level***

Over the next decade the potential for green jobs is predicated be very large. Studies show that up to half a million new jobs in ecologically responsible trades will be created in the next three years alone and at every income level, from chief sustainability officer to "green" maintenance supervisor. In addition, professionals will find opportunities by adding green to their skill sets.

Part of the growth in green collar jobs will come from government initiatives: The U.S. House of Representatives recently passed the Green Jobs Act of 2007 that would provide \$125 million annually to train people for green vocational fields that offer living wages and upward mobility for low-income communities.

The State of California is proposing and passing policies and programs designed to improve environmental quality. These include policies related to zero waste, energy and water conservation, residential solar energy, and others categories related to sustainable principles. AB 32 is a landmark piece of legislation that may serve as a role model for a federal greenhouse gas regulatory program.

#### ***Green Investments and Jobs***

According to the Center for American Progress (CAP), the green economic recovery program would spend \$100 billion dollars over two years in **six (6) green infrastructure investment areas**, key to transitioning to a low-carbon economy to create new green jobs. They are also all central to securing America's energy security and combat global warming. This \$100 billion initiative is part of a comprehensive low-carbon energy strategy and would create 2 million jobs by investing in the following six (6) energy efficiency and renewable energy strategies:

- ***Retrofitting buildings to improve energy efficiency***
- ***Expanding mass transit and freight rail***
- ***Constructing "smart" electrical grid transmission systems***
- ***Wind power***
- ***Solar power***
- ***Next-generation biofuels***

In the table below, CAP lists occupations that will be needed to advance investments in each of these areas. Some of these jobs are in specialized areas, such as installing solar panels and researching new building material technologies. But the vast majority of jobs are in the same areas of employment that people already work in today, in every region and state of the country. In addition, all of these strategies engage a normal range of service and support activities—including accountants, lawyers, office clerks, human resource managers, cashiers, and retail sales people. We have not listed these and other related occupations in Table 1 below because these jobs are not directly linked to any of our six green investment strategies. But new employment opportunities will certainly also open up in these areas as a result of the green recovery program.

<b>Green Investments and Jobs</b>	
<b>Strategies for Green Economic Investment</b>	<b>Representative Jobs</b>
<b>Building Retrofitting</b>	Electricians, Heating/Air Conditioning Installers, Carpenters, Construction Equipment Operators, Roofers, Insulation Workers, Carpenter Helpers, Industrial Truck Drivers, Construction Managers, Building Inspectors
<b>Mass Transit/Freight Rail</b>	Civil Engineers, Rail Track Layers, Electricians, Welders, Metal Fabricators, Engine Assemblers, Bus Drivers, Dispatchers, Locomotive Engineers, Railroad Conductors
<b>Smart Grid</b>	Computer Software Engineers, Electrical Engineers, Electrical Equipment Assemblers, Electrical Equipment Technicians, Machinists, Team Assemblers, Construction Laborers, Operating Engineers, Electrical Power Line Installers and Repairers
<b>Wind Power</b>	Environmental Engineers, Iron and Steel Workers, Millwrights, Sheet Metal Workers, Machinists, Electrical Equipment Assemblers, Construction Equipment Operators, Industrial Truck Drivers, Industrial Production Managers, First-Line Production Supervisors
<b>Solar Power</b>	Electrical and Mechanical Engineers, Electricians, Industrial Machinery Mechanics, Welders, Metal Fabricators, Electrical Equipment Assemblers, Construction Equipment Operators, Installation Helpers, Laborers, Construction Managers
<b>Advanced Biofuels</b>	Chemical Engineers, Chemists, Chemical Equipment Operators, Chemical Technicians, Mixing and Blending Machine Operators, Agricultural Workers, Industrial Truck Drivers, Farm Product Purchasers, Agricultural and Forestry

### ***LADWP's Role***

Examining the six energy efficiency and renewable energy investment strategies, it is evident that LADWP, as a local energy provider, will locally be instrumental in the support of an economic revitalization program. LADWP's primary strategies include four out of the six categories and provide job opportunities in many of the green workforce categories. The following describes the local setting regarding LA's Labor Force and Economic Base.

### ***City of LA's Labor Force***

Perhaps the greatest asset Los Angeles boasts is its incredible labor force. Below some of the Los Angeles facts are identified:

- A labor pool of 4.5 million people, 25 percent of whom have at least a bachelor's degree.
- The largest creative talent pool in the world. From food and fashion, arts and entertainment, to science and technology, LA is home to innovators who influence lifestyle and business trends around the globe.
- Every major auto manufacturer has a design studio or design presence in Los Angeles.
- Six major universities, including UCLA and USC, plus seven community colleges.

(Source: Los Angeles County Economic Development Corporation)

### ***Diverse Economic Base***

Part of Los Angeles' economic strength stems from housing world-class industries that have the proven ability to withstand economic turbulence. Using 2005 average employment figures as a measure, the leading industries in Los Angeles are:

- Technology 207,300
- Business and Professional Services 165,100
- Tourism 263,500
- Health Services/Biomed 117,600
- International Trade 290,300
- Motion Picture/TV Production 241,100
- Apparel/Textile Design & Manufacturing 99,500

(Source: Los Angeles County Economic Development Corporation)

### ***LADWP's Economic Development Group***

As the nation's largest municipal utility, LADWP has always believed it is its duty to invest in the future of Los Angeles. During the 1950s and 60s, the water and power services provided by LADWP played a significant role in the economic and demographic expansion of the city.

In 2001 LADWP continued its tradition of spurring economic growth in Los Angeles by formally establishing an Economic Development Group (EDG). In the years since its inception, EDG has implemented an array of programs to attract new businesses and encourage expansion and retention of small and medium-sized businesses in the City of Los Angeles. Today, Economic Development coupled with Education and Outreach Services are delivering a myriad of services designed to support the establishment of a green economy and the attendant labor force.

Businesses with 500 or fewer employees account for over 99 percent of the tax revenue generated in Los Angeles. It is therefore critical to assist these ventures financially. EDG funds new community redevelopment and beautification programs, utility infrastructure loans, training and outreach programs, Smooth Power Program, and business expansion and retention initiatives. In the process, the EDG has collaborated with agencies at the city, county, state, and federal levels, including Mayor Antonio R. Villaraigosa's Office, the Los Angeles City Council offices, the Community Development Department, the Community Redevelopment Agency, and the Los Angeles County Economic Development Corporation.

These efforts have resulted in the creation of hundreds of new jobs, thousands of dollars in tax revenue, and an improved quality of life for Los Angeles residents. Perhaps most important, these economic development efforts underscore the reality that it is only by helping its constituents that the City of Los Angeles can strengthen its economic well being. With great enthusiasm, the EDG looks forward to continuing and broadening the spurring of economic growth in the years ahead

with particular emphasis placed on green jobs that will both benefit the California economy as well as the environment.

### ***Workforce Training***

LADWP works with the Community Development Department and organizations such as WorkSource California to organize training workshops for local residents. The WorkSource network offers skill assessments and technology instruction to existing and new employees, at no cost to the business owners. Many centers also provide open workshops on critical workplace issues and better business practices, as well as practical job skills, entrepreneurial instruction, and on-the-job training.

LADWP also collaborates with the **California Workforce Investment Board (CWIB)** to advise and assist in planning, coordinating, and monitoring the provisions of California's workforce development programs and services. To learn more about these employment services, please visit the CWIB website at <http://www.calwia.org/>.

### **Green Jobs and the Economy**

*Training Curriculum* - LADWP entered into an agreement with Los Angeles Trade-Technical College to formulate a sustainable development curriculum, targeting local residents. LADWP has also entered into agreements with other institutions to develop specialized training curriculum to support the training needs of future employees.

*Regional Economic Development Initiative (REDI)* - LADWP is a partner in the private-public initiative Regional Economic Development Initiative (REDI) between the city of Los Angeles, the Los Angeles Trade-Technical College and private organization with a particular focus on preparing a work force ready for renewable energy and other sustainable jobs.

*Los Angeles Infrastructure Academy* - In September 2007, Mayor Antonio Villaraigosa announced a program aimed at improving vocational training for Los Angeles high school students and addressing an anticipated staffing shortage at the Los Angeles Department of Water and Power. The Los Angeles Infrastructure Academy, a two-year program for high school juniors and seniors who do not plan to attend college, will teach academic and technical skills needed to work for the DWP or other Southland utility companies.

*GreenLA* - LADWP is collaborating with the Green LA non-profit organizations to identify and promote green jobs and green economic development opportunities. LADWP renewed its association with the non-profit Los Angeles Conservation Corps (LACC), as part of LADWP's continued commitment to its "Trees for a Green LA" program.



***TABLE 5-1. SUMMARY OF EXISTING GREEN JOB PRACTICES AT LADWP***

***▶ LADWP CONDUCTS NUMEROUS PROGRAMS TO PROMOTE GREEN JOBS IN LOS ANGELES***

***TABLE 5-2. ACTIONS TO IMPLEMENT THE GREEN JOB OBJECTIVES***

***▶ LADWP CONTINUES TO DETERMINE THE NUMBER OF GREEN JOBS PROVIDED WITHIN THE DEPARTMENT AS WELL AS THROUGHOUT THE LOCAL ECONOMY***

***▶ LADWP, IN COOPERATION WITH OTHER CITY DEPARTMENTS, DEVELOPS PROGRAMS TO ESTABLISH AND MAINTAIN GREEN JOBS IN LOS ANGELES***

***▶ LADWP COMPILES ANNUAL REPORTS ON EFFORTS PERTAINING TO GREEN JOBS IMPLEMENTATION***



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## 6. WASTE DIVERSION

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### Objectives

► *Increase recycling and source reduction efforts at all facilities and for all operations*

### Objectives

► *Increase use of environmentally and socially responsible products*

► *Divert 70% of solid waste from landfills by 2015*

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### AB 939 WASTE REDUCTION DIRECTIVE

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The California Integrated Waste Management Act of 1989 (AB 939) requires municipalities to divert 50 percent of their solid waste from landfills by the end of 2000. These goals have been met and now the City has set a goal of diverting 70 percent by 2015. In addition, the City has plans to become a “zero waste” city by the year 2025 with emphasis on resource recovery rather than waste disposal.

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### CITY OF LA POLICIES AND PROGRAMS

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The City collects refuse, recyclables and yard waste from over 750,000 households, averaging 6,600 tons per day. Some of the accomplishments to date include the following:

- Established the nation's first curbside 'co-mingled' (blue-bin) recycling program.
- Achieved a 62% solid waste diversion rate, the highest of any other LARGE American city.
- Established a 70% garbage diversion rate goal by 2015.
- Added multifamily apartments and condos to the blue-bin recycling program.
- Expanded the citywide food recycling program for restaurants to reduce food waste.
- Recruited 305 schools to participate in the LAUSD School recycling program to reduce waste and educate younger generations of the benefits of recycling.

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## LADWP EXISTING REDUCTION AND RECYCLING PROGRAMS

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In order to comply with state and city waste diversion goals, LADWP has implemented a number of innovative source reductions, recycling, composting, and reuse programs. LADWP has been very successful in implementing AB 939; below is a description of individual programs and a summary table of programs that have contributed to a diversion rate of over 80 percent in recent years:

### Source Reduction

- *Green Waste Recovery* - LADWP generates and disposes of green waste through its own crews and some privately contracted tree trimmers.
- *Internal Printing Modification* - LADWP phased out the use of printing on three-ring binders, so they could be more easily reused. The LADWP phased out the use of colored paper wherever possible to increase the use of more readily recyclable white office paper.
- *Recycled Content use for Customer Bills* - The LADWP modified its contract specifications to require recycled-content in the paper and envelopes it uses for customer billing.

### Recycling

- *Salvage Materials Recovery Program* - The Program recycles a large variety of materials including all types of scrap metal, wire, scrap wood reels, and old furniture.
- *Administrative Office Recycling Program* - LADWP implemented an office paper recycling program in all major administrative office buildings through a certified recycling company.
- *Use of Current City Inert Materials Contracts* - LADWP has issued its own contracts for inert recycling and diverts some clean loads of concrete and asphalt to these facilities.
- *Green Waste Recovery Contract Language* - LADWP includes language in its tree trimming contracts that requires contractors to recycle green waste from LADWP projects.

### Education

- *Source Reduction and Recycling Education* - Ongoing education was expanded to include updates and educational facts in newsletters, new employee orientation and via email/voicemail.

### Market Development

- *Buy-Recycled Program* - The Board of Commissioners approved the Buy Recycled Resolution in April 2000. The Recycling Program provides recycled-content specifications for pertinent contracts to Purchasing.





**TABLE 6-1 SUMMARY OF EXISTING WASTE REDUCTION EFFORTS AT LADWP**

- ▶ **LADWP ACHIEVES 80 PERCENT SOLID WASTE DIVERSION FROM LANDFILLS**
  
- ▶ **LADWP CONDUCTS INCREASED EFFORTS IN OFFICE RECYCLING AND REDUCTION FOR INTERNAL OPERATIONS AND ON THE CUSTOMER SIDE**
  
- ▶ **LADWP ADOPTS “BUY RECYCLED PROGRAM” IN APRIL 2000**
  
- ▶ **LADWP CONDUCTS FACILITIES WASTE AUDITS AND EDUCATION ON SOURCE REDUCTION AND RECYCLING**

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STRATEGIES TO IMPLEMENT RECYCLING AND WASTE REDUCTION OBJECTIVES

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**TABLE 6-2 ACTIONS TO IMPLEMENT WASTE REDUCTION OBJECTIVE**

- ▶ **EXAMINE OPPORTUNITIES TO REDUCE PAPER AT COMMISSION HEARINGS**
  
- ▶ **DEVELOP SHORT AND LONG-TERM ACTIONS AND EVALUATE IN YEARLY REPORT**
  
- ▶ **EXAMINE OPPORTUNITIES TO ENCOURAGE EMPLOYEES TO REDUCE DOCUMENTS**
  
- ▶ **DEVELOP GOALS TO REDUCE OR ELIMINATE PAPER USAGE BY 10 PERCENT BY 2010**
  
- ▶ **PRINT ON BOTH SIDES OF PAPER FOR ALL DOCUMENTS**



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## 7. PROCUREMENT AND USE OF ENVIRONMENTALLY PREFERRED PRODUCTS

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### Objectives

► *Increase purchasing and use of environmentally and socially responsible products*

### Objectives

► *Integrate sustainable practices into internal policies, business processes, and written agreement.*

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### CITY OF LA ENVIRONMENTAL PREFERABLE PURCHASING (EPP) POLICY

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In June 2005, a motion by Councilmembers Smith and Garcetti directed the City to explore the possibility of improving the City's Recycled Products Purchasing Program by incorporating the environmentally sustainable factors into the purchase of products. On June 12, 2009, the City Council adopted Ordinance No. 180751 under Council file No. 09-0729, amending the Los Angeles Administrative Code to establish a policy to promote the City's purchase or recycled and other environmentally preferable products whenever they meet price and performance requirements. LADWP is working with the Mayor's Office, the City's General Services Department (GSD), and the City's Environmental Affairs Department to implement the ordinance. LADWP will continue to work with the EPP Task Force to develop the green purchasing program.

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### LADWP PURCHASING POLICY

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In March 2000, the LADWP Board adopted City of Los Angeles Ordinance Nos. 168313 and 170485 with the approval of Resolution No. 214. This Resolution established the "Buy Recycled Program" for LADWP and promotes the purchase of goods, supplies, and equipment containing recycled-content materials, and gives a 10 percent bid preference to prospective vendors for contracts greater than \$1,000 whose products contain more than 25 percent recycled material.



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### EXISTING PRACTICES

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LADWP is committed to green purchasing through its Buy Recycled Program, adopted by the Board in March 2000. The program promotes the purchase of goods, supplies, and equipment containing recycled-content materials and gives a 10 percent bid preference to prospective vendors whose products contain more than 25 percent recycled material.

#### ***TABLE 7-1 SUMMARY OF EXISTING EPP PRACTICES AT LADWP***

***▶ LADWP ADOPTS “BUY RECYCLED PROGRAM” IN 2000 WHICH PROVIDES A 10 PERCENT BID PREFERENCE TO PROSPECTIVE VENDORS WHOSE PRODUCTS CONTAIN MORE THAN 25 PERCENT RECYCLED MATERIAL***

***▶ LADWP COLLABORATES WITH THE EPP TASK FORCE TO IMPLEMENT THE EPP POLICY AND DEVELOP CONSISTENT, EFFECTIVE CONTRACT SPECIFICATIONS FOR MATERIAL PURCHASES***

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### STRATEGIES TO IMPLEMENT ENVIRONMENTAL PREFERRED PURCHASING POLICY OBJECTIVE

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#### ***TABLE 7-2 ACTIONS TO IMPLEMENT EPP OBJECTIVES***

***▶ DEVELOP SHORT AND LONG-TERM ACTIONS AND EVALUATE IN YEARLY REPORT***

***▶ CONTINUE INTRA DEPARTMENTAL MEETINGS WITH THE EPP TASK FORCE***

***▶ IMPLEMENT AND ALIGN LADWP PURCHASING POLICIES WITH CITY'S EPP POLICY AND ORDINANCE AND DEVELOP METHODS TO INCORPORATE APPROPRIATE LANGUAGE IN PROPOSED CONTRACTS***



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## 8. AIR QUALITY

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Objective

► *Quantify and develop accurate GHG emissions inventories*

Objective

► *Reduce GHG emissions levels to 35% below 1990 levels by 2030*

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### CITY OF LA CLIMATE CHANGE POLICIES

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As part of an ambitious environmental agenda to make Los Angeles the cleanest and greenest big city in America, Mayor Villaraigosa has initiated an aggressive plan to reduce greenhouse gas emissions that contribute to global warming. Through mitigation and adaptation strategies, the City will reduce CO<sub>2</sub> emissions 35% below 1990 levels by 2020. On July 1, 2009, the Mayor announced an even more ambitious goal of achieving a 60% carbon reduction and being a coal-free City in 2020. These new goals of the Mayor have not been incorporated into the Sustainability Plan. Further updates will address these new goals.

Mayor Villaraigosa believes that Los Angeles has a responsibility to confront the gathering climate crisis. As a signatory to the U.S. Conference of Mayors Climate Protection Agreement and a member of the C40 Large Cities Climate Leadership Group, which includes the world's leading cities, Los Angeles is sharing effective strategies for combating the negative impacts of climate change.

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### CRITERIA POLLUTANTS AND OPPORTUNITIES FOR REDUCTIONS

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#### **Increasing the efficiency of in-basin power plants**

The LADWP is committed to reducing air pollution from all its activities including emissions from thermal power plants, fleet vehicles, construction activities, portable and stationary internal combustion engines and other equipment. LADWP's four in-basin power plants all meet or exceed the Best Available Retrofit Control Technology (BARCT) emission standards set by the South Coast Air Quality Management District (SCAQMD). Natural gas usage can be reduced by up to 30 percent by replacing aging steam boiler generating units with modern combined cycle plants. Valley Units 1 to 4 were repowered with combined cycle technology in 2002 and Haynes Units 3 and 4 in 2004. These plants were equipped with emission control devices that reduce the emissions of oxides of nitrogen (NO<sub>x</sub>) by at least 90 percent. Additional repowerings at Haynes and Scattergood Generating Stations are currently in the planning and design phase.

**Reduce emissions from coal fired power plants**

The LADWP has a 10 percent ownership share in Mohave Generating Station which has been in shutdown mode since December 31, 2005. The owners have completed the decommissioning study of the station and will consider their options for implementation.

**Alternative Marine Power Systems (AMPS)**

The LADWP supports the objectives of the San Pedro Bay Ports Clean Air Action Plan which includes a schedule for supplying shore power to ships berthed at the Port of Los Angeles (POLA) by means of AMPS. The LADWP already provides shore power to two berths at POLA and plans to provide power to an additional 13 more berths in the next five years, at POLA's request.

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**GREENHOUSE GAS POLICY**

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As part of efforts to reduce greenhouse gas emissions as soon as possible, the Board mandated in 2005 LADWP to meet an RPS goal of 20 percent of renewable energy by 2010.

In 2007, the Board adopted a set of climate change principles that included as the first priority a focus on pursuing reductions of greenhouse gas emissions along with support for the development and deployment of water conservation, energy efficiency, and advanced clean technologies and customer outreach and education on climate change and actions that can be taken directly to reduce energy and water consumption.

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**GREENHOUSE GAS EMISSIONS INVENTORIES AND REQUIREMENTS**

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In 2002, LADWP became a Charter Member of the California Climate Action Registry (Registry). The LADWP has certified greenhouse gas (GHG) emissions inventories with the Registry for the years 2000 to 2007.

In 2006, AB 32 – The Global Warming Solutions Act of 2006 was enacted. Under AB 32, LADWP is required to report GHG emissions to the California Air Resources Board (CARB). By January 1, 2011, CARB will adopt regulations implementing GHG emission limits. These limits will become effective on January 1, 2012.

LADWP's ambitious renewable energy program will lead to major reductions in Power System related GHG emissions. LADWP's actions to "Green the Fleet" will lead to major reductions in fleet-related GHG emissions.

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EXISTING AIR QUALITY PRACTICES

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**TABLE 8-1. SUMMARY OF EXISTING AIR QUALITY IMPROVEMENT EFFORTS AT LADWP**

▶ **LADWP IN COOPERATION WITH OTHER CITY DEPARTMENTS IMPLEMENT THE CITY'S CLIMATE ACTION PLAN**

▶ **LADWP CONDUCTS MONITORING FOR CRITERIA AND GREENHOUSE GASES AND PREPARES EMISSION INVENTORIES**

▶ **LADWP SUPPORTS THE DEVELOPMENT OF ELECTRIFICATION PROJECTS, INCLUDING THE PORT'S ALTERNATIVE MARINE POWER PROJECTS**

▶ **LADWP CONDUCTS AIR QUALITY ANALYSES IN CEQA DOCUMENTS AND ADOPTS MITIGATION MEASURES AS REQUIRED**

**TABLE 8-2. ACTIONS TO IMPLEMENT THE AIR QUALITY OBJECTIVES**

▶ **LADWP PARTICIPATES IN DEVELOPMENT OF GHG SIGNIFICANCE THRESHOLDS FOR USE IN CEQA DOCUMENTS**

▶ **REDUCE GHG EMISSIONS LEVELS TO 35% BELOW 1990 LEVELS BY 2030**

▶ **INCORPORATE THE MAYOR'S NEW CARBON REDUCTION GOALS ESTABLISHED JULY 1, 2009 TO BE 60% COAL FREE BY THE END OF THE NEXT DECADE**



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## 9. TRANSPORTATION

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Objectives

▶ *Continue “Greening the Fleet” and convert 85 percent of all LADWP-fleet vehicles to alternative fuels by FY 2012-2013*

Objectives

▶ *Reduce impacts to the environment by reducing the carbon intensity of transportation fuels*

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### CITY TRANSPORTATION AND ALTERNATIVE FLEET POLICY

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The City was the first to incorporate alternatively fueled vehicles into its fleet and owns the nation's largest municipal alternative-fuel refuse truck fleet. The Mayor's strategy is to convert 85% of all city-fleet vehicles powered by alternative fuels by FY 2012-2013.

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### LADWP GREENING THE FLEET PROGRAM OBJECTIVES

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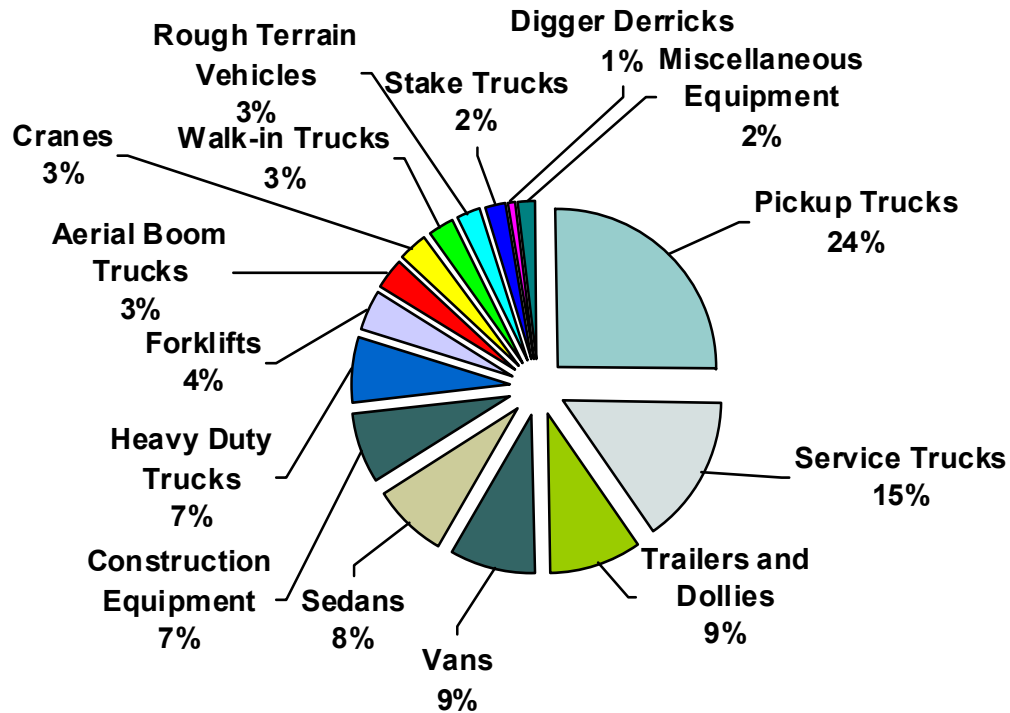
LADWP has aggressively been implementing the policy of greening its fleet and in accordance with the City's policy established objectives and has therefore invested in alternative fuel vehicles (AFVs) and fueling infrastructure. However, it remains a challenge to balance the movement towards greener vehicles and the cost-benefit and functionality of those vehicles versus increasingly cleaner conventional fuel (gasoline and diesel) vehicles.




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**CURRENT FLEET PROFILE VEHICLE MIX (5720 UNITS AS OF JUNE, 2009)**

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**LADWP'S HISTORICAL INVESTMENT IN ALTERNATIVE FUEL VEHICLES AND INFRASTRUCTURE**

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LADWP launched an aggressive electric transportation program in the 1990s and had more than 327 electric cars and trucks, and 26 electric buses. On the infrastructure side of the application, LADWP installed a total of 291 charging stations throughout the Los Angeles area. PHEV technology is expected to be available from original equipment manufacturers (OEMs) in the Model Year 2010 timeframe. LADWP plans to purchase these vehicles when they become available.

Other forms of alternative fuels include extensive use of CNG. To date, LADWP has deployed 22 heavy-duty and 169 light-duty CNG-fueled vehicles. Over the next two model years, the number of CNG units will increase to over 200 for heavy-duty and over 250 for light-duty. LADWP has successfully installed three (3) CNG refueling stations in downtown Los Angeles, Sun Valley, and

Van Nuys and plans to add three (3) additional sites in Northridge, West LA, and San Pedro. \$4 million has been budgeted for FY10/11 for the installation and upkeep of the CNG stations.

LADWP also has 185 gasoline hybrid vehicles and requests CNG and hybrid vehicles when available under rental contracts. Additionally, three prototype plug-in hybrid vehicles are undergoing performance testing and additional electric vehicles will be procured when commercially available.

**TABLE 9-1 SUMMARY OF EXISTING TRANSPORTATION EFFORTS AT LADWP**

▶ **LADWP INSTALLED EMISSION CONTROL DEVICES DESIGNED TO REDUCE PARTICULATE MATTER EMISSIONS BY 85 PERCENT ON 180 HEAVY-DUTY TRUCKS.**

▶ **RECEIVED \$1.167 MILLION IN GRANT FUNDS TO PURCHASE AND RETROFIT 11 LOW-POLLUTING BACKHOES TO REPLACE OLDER UNITS.**

▶ **PURCHASED OR LEASED OVER 180 HYBRID SEDANS AND 45 CNG SEDANS**

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STRATEGIES FOR GREENING THE FLEET

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**TABLE 9-2 ACTIONS TO IMPLEMENT THE TRANSPORTATION OBJECTIVES**

▶ **CONTINUE RETROFITTING OVER 800 HEAVY-DUTY TRUCKS WITH EMISSION CONTROL DEVICES DESIGNED TO REDUCE PARTICULATE MATTER EMISSIONS BY AT LEAST 85 PERCENT.**

▶ **CONTINUE CONVERTING LIGHT-DUTY VEHICLES TO CLEAN BURNING CNG AND HIGHLY FUEL EFFICIENT HYBRID, PLUG-IN AND ALL ELECTRIC VEHICLES.**

▶ **CONTINUE REPLACING OVER 300 OFF-ROAD VEHICLES (E.G. FORKLIFTS, BACKHOES AND TRACTORS) WITH NEWER, CLEANER MODELS.**

▶ **CONTINUE REPLACING OVER 200 PORTABLE DIESEL ENGINES WITH NEWER CLEANER MODELS**



## 10. ENVIRONMENTAL STEWARDSHIP PROGRAMS

Objectives

▶ *Continue developing natural resources management programs in the Owens Valley*

Objectives

▶ *Develop and support existing citywide conservation programs*

### OPEN SPACE AND GREENING POLICY FOR THE CITY OF LA

Much of the City of Los Angeles has been paved over. The Mayor's vision calls for unpaving paradise by greening Los Angeles through the Million Trees LA Initiative and by creating more open spaces. The primary city-wide strategies include creating 35 new parks by 2010, restoring streams, and revitalizing the Los Angeles River.

### LOS ANGELES RIVER RESTORATION

LADWP spearheaded the development of the Los Angeles River Master Plan, a visionary document to restore and improve the Los Angeles River corridor. LADWP supports the improvement of the Los Angeles River habitat and water quality and encourages continued efforts to retain, expand, and attract new and existing local businesses along the Los Angeles River. LADWP is coordinating with other City departments on projects and programs to advance stormwater capture goals in the Master Plan.

### CITYWIDE PROGRAMS

**Million Trees LA (MTLA)** - Mayor Villaraigosa launched MTLA as part of an effort to make Los Angeles a greener, cleaner and more beautiful city. Trees are critical to quality of life. They increase air quality by supplying oxygen and by removing pollutants such as ozone, particulate matter, and carbon dioxide from the air, thus also reducing greenhouse gases that cause global warming. Trees also reduce the need for air conditioning. Through their root systems, trees also absorb and clean polluted urban runoff - the primary cause of ocean pollution. And trees have aesthetic benefits, improving quality of life and raising property values. Recognizing these benefits, the Mayor set the goal of planting 1 million trees.





MTLA is a community effort: Many of the one million new trees will be planted by City departments on public property. Others will be planted throughout the City by individual volunteers, community groups, organizations, and businesses. MTLA is a cooperative effort between the City of Los Angeles, community groups, businesses, and individuals working together to plant and provide long-term stewardship of one million trees planted where they're needed most. MTLA will take several years and build on other programs that plant and care for the urban forest. Trees that maximize sustainability – with a preference on native and drought tolerant species – are recommended.

*A [tree canopy analysis](#) was developed by Dr. Greg McPherson, a scientist with the [USDA Forest Service, PSW Research Station, Center for Urban Forest Research, Davis, CA](#) and will be used to:*

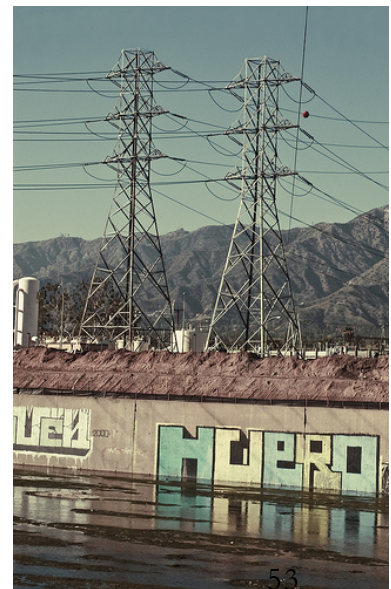
- 1. Map Los Angeles' current tree canopy*
- 2. Inventory potential tree planting sites*
- 3. Forecast future environmental and social benefits*

Planting will be guided by this information with an emphasis on schools, underserved communities, transportation corridors and areas along the LA River. MTLA has identified areas of the city that have the lowest canopy coverage, and has launched a concentrated effort to increase the tree population along major transportation corridors. Signature Projects will transform a highly visible major corridor in Los Angeles from a concrete thoroughfare into a thriving green corridor.

To achieve the objectives of MTLA, several tree planting programs are being coordinated. Residential electric customers of LADWP can qualify for free shade trees through the LADWP GreenLA program and are asked to document the tree planting.

LADWP has also renewed its association with the non-profit Los Angeles Conservation Corps (LACC), as part of LADWP's continued commitment to its "Trees for a Green LA" program. The goal of the "Trees for a Green LA" program is to provide thousands of trees annually to the Los Angeles urban forest, part of Mayor Antonio R. Villaraigosa's Million Trees Initiative. Already 300,000 trees have been planted, with the help of TreePeople, who for 30 years have planted more than two million trees throughout metropolitan LA. Founded by Los Angeles teenagers, TreePeople has 200 chapters across the world.

**LA River Revitalization** – One of the initiatives shepherded by the Ad Hoc River Committee is the LA River Revitalization Master Plan. As a result of this Committee's efforts, and with funding from [LADWP](#), the City issued a Request for Proposals in 2005 for the preparation of a Revitalization Master Plan for the LA River transformation. The 18-month revitalization planning process looked at improvements along the project area aimed at protecting wildlife, promoting the health of the river, and leveraging economic development. By the end of the planning process, a 20-year blueprint for development and management of the LA River was developed for implementation by the City of Los Angeles. The plan was officially adopted by the City Council in May 2007.



The LA River Revitalization Plan, which includes development of parks, greenspace and over thirty miles of continuous recreational paths, is expected to be fully implemented in 25 to 50 years. Central to the plan is changing the way L.A. residents use—and view—the L.A. River, which was paved over in the 1950's to spare the city from devastating floods. What was once a source of fresh water is now a concrete channel that runs from Canoga Park in the west end of the San Fernando Valley, to its mouth in Long Beach.

The official plan, adopted in 2007, projects a 25- 50 year time frame for completion at a cost of two- to seven- billion dollars. Over 30 miles of the river will be transformed into a continuous greenway filled with parks and recreational paths. Native drought-tolerant vegetation will be planted and no new sources of water will be introduced. The river is sourced by treated wastewater and storm runoff. It rarely sees water, and some areas are dry for most of the year. A complex system of inflatable dams will be used to create ponds along the length of the river during drier days.



*Photo Caption: This is an artist's rendering of parks and pathways along the Los Angeles River of the future. (Rendering courtesy of Monica Valencia)*

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#### LADWP SUCCESS IN THE OWENS VALLEY WATERSHED MANAGEMENT PROGRAM

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The goal of LADWP's natural resource management is to employ best management practices (BMPs) for land and water uses that maintain water supplies to the city while protecting water quality, habitat, biodiversity, and threatened and endangered species throughout the watershed. Because LADWP owns most of the bottomland in the Owens Valley, BMPs must also incorporate recreational uses as well as sustainable agriculture.

LADWP's natural resource management concept recognizes that the Owens Valley consists of several sub-watersheds (***Mono Basin, Upper Owens, Owens Gorge, Middle Owens, Lower Owens, and Owens Lake***) that must be managed as a single watershed. The ecosystem within this watershed is a continuum; not a set of isolated, unrelated parts. Sub-watersheds are connected ecologically and management actions in one sub-watershed will have effects in adjacent sub-watersheds.

The Department also emphasizes the role people living and working in the Valley play in ecosystem management. Although the Department is the largest landowner in the Valley, human perception, values, world views, and traditions must be taken into account and incorporated into management goals and plans.



Since the early 1990s, LADWP has focused on natural resource projects that restore riparian vegetation along the Owens River and tributaries as well as the rehabilitation of degraded or dewatered stream reaches throughout the watershed. In addition to water quality and water quantity benefits from these projects, plant and animal biodiversity has increased, fish and wildlife have increased with more and improved habitat, there are more acres of wetlands in the watershed than in decades past.

LADWP can point to numerous successes in ecosystem restoration throughout the Owens Valley. The Department, through real-time management experience, is today one of the leading institutions in ecosystem restoration and watershed management. Research performed by the Department in support of its management has advanced ecosystem restoration science and contributed materially to the understanding of natural processes and ecosystem function at the watershed level. The approaches and concepts LADWP has developed in the Owens Valley watershed are a model for other watersheds, and, in fact, set the standards against which other watershed projects around the world can be measured.

LADWP's commitment to improving the Owens Valley watershed has not gone unrecognized. Through publications in scientific journals, presentations at professional conferences, newspaper articles, television and radio shows, videos, public forums and small focus groups, the renaissance taking place in the Valley is being heard.





**Owens Lake Dust Mitigation Project** - Owens Lake, located in southern Owens Valley at the terminus of the Owens River, became dry in the early part of the past century as a result of increased water use in the Owens Valley and the construction of the Los Angeles Aqueduct. Dust storms from the dry lake surface degraded air quality in the Owens Valley. LADWP agreed to undertake significant improvements at Owens Lake to mitigate the dust. To date, LADWP has constructed 29.8 square miles of shallow flooding and managed vegetation mitigation, resulting in improved air quality. LADWP is currently expanding the mitigation with additional shallow flooding and alternative dust control measure projects.

**Lower Owens River Project** - Under the 1991 Inyo County/Los Angeles Water Agreement, the LADWP and Inyo County agreed to implement the Lower Owens River Project (LORP) as compensatory mitigation for impacts related to LADWP's groundwater pumping in the Owens Valley from 1970 to 1990. The LORP provides for the release of permanent water flows in 62 miles of the Lower Owens River that was diverted to Los Angeles in 1913, and has been called the most significant environmental restoration project in the western United States. Implementation of the project has proved to be a lengthy process because of the magnitude and complexity of the restoration effort.

In December 2006 more than 500 people gathered at the Los Angeles Aqueduct Intake to witness the first release of permanent water flows into the Lower Owens River in almost 100 years by Los Angeles Mayor Antonio Villaraigosa, Inyo County Board of Supervisors and then Chairperson Susan Cash, and others. With water now flowing year-round, the LORP will create thousands of acres of habitat for fish and wildlife. In turn, the river's rebirth will also create new opportunities for fishing, bird watching and other recreation as well as help the Owens Valley economy. Already biologists, recreational enthusiasts and others are reporting a remarkable recovery of the environment, with vegetation becoming established in the rewatered channel, and fish and other wildlife repopulating the entire river.

In the future the LADWP, Inyo County and the other parties anticipate working together to study opportunities for additional recreational facilities in the area. The project will have a positive economic benefit for the Owens Valley communities, such as Lone Pine, Independence, Big Pine, and Bishop, which are close to the LORP, and will be a remarkable opportunity for biologists, ecologists, other scientists and students to watch and study the progress of a major river restoration.



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EXISTING STEWARDSHIP PRACTICES

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***TABLE 10-1. EXISTING ENVIRONMENTAL STEWARDSHIP PRACTICES AT LADWP***

***▶ LADWP IN COOPERATION WITH OTHER CITY DEPARTMENTS IMPLEMENT THE LA RIVER REVITALIZATION PROGRAM AND THE MILLION TREES LA***

***▶ LADWP BOARD SPEARHEADS DEVELOPMENT OF LOS ANGELES RIVER MASTER PLAN***

***▶ LADWP PROVIDES WATER RESOURCE MANAGEMENT OF OWENS VALLEY AND MULTIPLE SUB-WATERSHEDS***

***TABLE 10-2. ACTIONS TO IMPLEMENT THE ENVIRONMENTAL STEWARDSHIP OBJECTIVES***

***▶ LADWP IN COOPERATION WITH OTHER CITY DEPARTMENTS IMPLEMENT THE LA RIVER REVITALIZATION PROGRAM AND THE MILLION TREES LA***

***▶ COMPILE ANNUAL REPORTS ON EFFORTS ON ENVIRONMENTAL STEWARDSHIP***

***▶ CONTINUE TO DEVELOP OPPORTUNITIES TO IMPLEMENT A COMPREHENSIVE RESOURCE MANAGEMENT IN OWENS VALLEY***



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## 11. TRAINING AND OUTREACH

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Objectives

► *Provide ongoing training to staff on environmental policies, practices, and programs*

Objectives

► *Integrate sustainable policies into all public outreach and operational interaction*

Aligned with LADWP overall sustainability objectives is the belief that a sustainable organization looks beyond environmental stewardship and addresses economic growth and social responsibility through interaction with its surrounding community. LADWP has a long history of conducting outreach and public education activities. LADWP staff is assigned to actively participate in public outreach events.

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### TRAINING, OUTREACH AND PUBLIC EDUCATION PROGRAMS

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Through its long-standing policies that focus on creating beneficial economic impacts, improving labor and community relations, and providing leadership in many arenas, such as energy and water conservation, LADWP is committed to making its facilities great places to work and travel through. LADWP takes an active role in communicating progress to the greater LADWP community.

LADWP is committed to increasing the awareness of its employees and the greater community of the importance and benefits of sustainable operations. LADWP will continue with its active outreach program to the greater Los Angeles community but it will also take more active role of communicating its efforts to the LADWP community.

LADWP employee training programs include, but are not limited to the following:

► **LADWP Hazardous Substances Training** - Environmental Services provides initial and refresher hazardous substances (materials and waste) training to LADWP employees. Classes are presented at various field locations and held monthly at the John Ferraro Building. The training is tailored to meet local, state and federal regulations as they apply to LADWP. The classes teach employees to use the Hazardous Waste and Hazardous Materials field guides. The courses include:

- Overview of hazardous waste versus hazardous materials
- Identification of hazardous waste and hazardous materials

- Proper packaging, storage, and labeling
- Required transportation documentation

▶ ***LADWP New Employee Training Program*** includes information on the office Recycling Program and opportunities for waste diversion. Environmental Services staff provides this segment in the new employee training course.

▶ ***Environmentally Preferred Purchasing Policy (EPP)*** - LADWP policy requires employee training on environmental issues affecting product lifecycles. Training is an essential mechanism for meeting the Department’s sustainability plan goals.

▶ ***Sustainability Awareness Training-*** In compliance with ED 10, LADWP will start providing sustainability awareness training to its staff by early 2010. As part of this program, LADWP will recognize the staff that has taken a leadership role in promoting sustainability.

***TABLE 11-1. SUMMARY OF EXISTING TRAINING PROGRAMS***

▶ ***LADWP NEW EMPLOYEE TRAINING***

▶ ***LADWP ENVIRONMENTALLY PREFERRED PURCHASING TRAINING***

▶ ***LADWP HAZARDOUS SUBSTANCE TRAINING***

LADWP will also develop an internal and external sustainability communication strategy by early 2010. This plan will be made available on the LADWP website. The website will provide general information on its sustainability programs and provide information on progress towards meeting its sustainability objectives.

Throughout its history, LADWP employees have taken steps to foster close relationships with local educational and charitable organizations. The following table details LADWP’s outreach to the greater community.

**TABLE 11-2. SUMMARY OF EXISTING OUTREACH PROGRAMS**

▶ **ADOPT-A-SENIOR PROGRAM**

▶ **MENTORING PROGRAMS**

▶ **BRING YOUR DAUGHTER TO WORK DAY**

▶ **SOLAR LA**

▶ **FLEX YOUR POWER**

▶ **MILLION TREES LA**

▶ **CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REVIEW PROCESS**

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**INCORPORATING SUSTAINABLE POLICIES INTO ALL OPERATIONAL ASPECTS**

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During review of LADWP sustainability policies and written agreements, it is evident by the numerous existing and planned programs detailed in this plan, that LADWP is committed to sustainability improvement. For the last 30 years, LADWP has performed many activities that have benefited the environment, the local economy and society. As LADWP implements this program, the Department acknowledges that it needs to integrate sustainability in a systematic manner by which the triple bottom line approach will become part of LADWP's daily business process.

In addition to the current programs that LADWP outlined under the other objectives, LADWP has programs that assist LADWP in integrating sustainable practices into policies, business processes, and written agreements. These programs are illustrated in the following table.

**TABLE 11-3. SUMMARY OF SUSTAINABLE PRACTICES IN POLICIES AND PROGRAMS**

▶ **MINORITY BUSINESS ENTERPRISE (MBE)/WOMEN BUSINESS ENTERPRISE (WBE) AND SMALL BUSINESS UTILIZATION AND RETENTION PROGRAM**

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▶ **ENVIRONMENTAL MITIGATION MEASURES IN CEQA DOCUMENTS**

▶ **ENVIRONMENTAL MITIGATIONS/COMMITMENTS FOR CONSTRUCTION**

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▶ **AIR QUALITY/EMISSION REDUCTIONS AND CONTROL**

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▶ **COMMUNITY ENVIRONMENTAL/HEALTH STUDIES**

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▶ **ETHICS POLICIES FOR INTERNAL POLICIES AND PROCEDURES**

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LADWP's external website is also an effective Public Education and Outreach tool as there are millions of hits per month. Many of these efforts are also described in more detail in other sections of the document. LADWP develops literature which is used during education and outreach events and programs. The following table establishes the goals to be measured in the next year in this category.

**TABLE 11-4. ACTIONS TO IMPLEMENT THE OUTREACH AND TRAINING OBJECTIVES**

▶ **LADWP COMPLETES INITIAL SUSTAINABILITY TRAINING BY EARLY 2010**

▶ **LADWP INCORPORATES SUSTAINABILITY OUTREACH AND TRAINING INTO THE ANNUAL COMMUNICATION PLAN**



# ANNUAL PROGRESS REPORT AND EVALUATION

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## SUMMARY

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The Sustainability Plan sets goals for a sustainable LADWP and the City of Los Angeles. The Mayor has stated that he intends to transform the City of Los Angeles into the greenest city in the world. LADWP will compile and publish an annual progress and evaluation report that will recognize exemplary projects and innovations as well as reference overall Program achievements. The first LADWP Sustainable Progress Report will be issued mid 2009, and will be completed every following year in June in accordance with the Executive Directive issued by the Mayor of Los Angeles in 2007.

Each year, LADWP will evaluate its progress as outlined in the Mayor's directive. Because some of the programs are already in place (e.g. Green Power), they will be more mature or robust than others. Other area programs may not already be in place, which will provide opportunities for LADWP to show improvement. It will be important as part of this Plan to continuously seek improvement and incorporate new concepts and technologies as they become available. As part of the annual progress report, each plan element will be evaluated against the goals and objectives and given a self-rating of progress achieved during that fiscal year. The evaluation will also contain a self-rating in terms of effort made to achieve the objectives outlined in the Sustainability Plan.

If you have questions regarding this plan or its implementation, please contact LADWP's Environmental Affairs Division at (213) 367-2743.