

## Sanitation Districts Green Programs

The Sanitation Districts of Los Angeles County provide environmentally sound, cost-effective wastewater and solid waste management. In the process, waste is converted into resources such as reclaimed water, energy, and recycled materials. The Sanitation Districts have become a leader in the production of green energy and the recycling of water and materials.

### Green Energy

The Sanitation Districts generate a total of 127 megawatts (MW) of electricity as part of its wastewater and solid waste operations. Plans are underway to increase generation to 139 MW by 2009, enough to power approximately 185,000 Southern California homes. The Sanitation Districts are the 20th largest power generator in California and, according to the EPA, were among the top 10 largest green energy users in the nation during the first half of 2007. The Sanitation Districts are the only organization on the list that also produces all of the green power it uses. Currently, the Sanitation Districts is the ninth largest producer of green power in the nation.

### Energy Programs in Wastewater

Biogas, generated during the treatment of wastewater solids, is used at the Sanitation Districts' wastewater treatment plants to generate power.

- JWPCP Total Energy Facility – The Joint Water Pollution Control Plant (JWPCP) treatment facility in Carson uses biogas to generate 22 MW of electricity. The JWPCP, which treats 320 million gallons per day (mgd), is not only energy self-sufficient, saving approximately \$15 million per year, it sells excess electricity to the local power grid.
- Valencia Water Reclamation Plant (WRP) Energy Facility – This facility in the Santa Clarita Valley uses biogas to produce about 400 kilowatts (KW) of electricity and hot water to meet much of the plant digester's heating demand. The 400 KW represents about 14% of the energy demand of this 21.6 mgd treatment plant.
- Antelope Valley Green Energy Program – Biogas is used in a 250 KW fuel cell at the Palmdale WRP and a 230 KW microturbine at the Lancaster WRP. Each of these projects was the first of its type to use biogas from a treatment plant. The projects include innovative systems to clean trace materials from the biogas and produce zero to ultra-low air emissions.

## Energy Programs in Solid Waste

- Gas-to-Energy Facilities – Biogas is generated during the decomposition of organic material buried in a landfill; the Sanitation Districts collect and use the biogas to generate electricity. At the Puente Hills Landfill near Whittier, 50 MW of electricity, enough to power 70,000 Southern California homes, is generated at the Gas-to-Energy Facility and sold to the local power grid. An additional 8 MW is generated by the second phase of this facility and utilized by the Sanitation Districts' nearby San Jose Creek Water Reclamation Plant. Similar Gas-to-Energy Facilities have been built at the Palos Verdes and Spadra Landfills, generating 3 MW and 8 MW, respectively. The Calabasas Landfill uses microturbines, generating 300 KW of electricity.
- Commerce Refuse-to-Energy Facility – This facility, located in the City of Commerce, utilizes controlled combustion to convert refuse to 10 MW of electricity, enough to power approximately 15,000 Southern California homes. Sophisticated air pollution control devices make this facility one of the cleanest of its type, in terms of air emissions, in the world.
- Clean Fuels Facility – In the early 1990s, the Sanitation Districts developed the first Clean Fuels Facility in the world that produces clean vehicle fuel from landfill gas (compressed landfill gas). Landfill gas has identical characteristics to clean-burning compressed natural gas (CNG). The Clean Fuels Facility, located at the Puente Hills Landfill, produces the equivalent of more than 1,000 gallons of diesel fuel per day. The fuel is used in the smaller vehicles in the landfill fleet.

Natural Gas Fueling Stations – The Sanitation Districts have begun to form the backbone of a clean fuel infrastructure in their service area with the construction of CNG fueling stations at the JWPCP and the Puente Hills Landfill. The Sanitation Districts' goal is to replace gasoline and diesel powered vehicles, as they reach the end of their useful lives, with clean burning CNG vehicles. CNG vehicles emit 90% less carbon monoxide, 60% less particulate matter, 50% less oxides of nitrogen, and 20% less greenhouse gas (carbon dioxide) than equivalent diesel vehicles. In addition, the Sanitation Districts are providing a public service to the community by allowing public access to the fueling station at the JWPCP 24 hours per day, 7 days per week. The Sanitation Districts have also built the Puente Hills Liquefied Natural Gas Fueling Facility to provide fueling capability for vehicles and other equipment fueled by liquefied natural gas.

## Green Programs in Wastewater

Water Reclamation – In the process of providing environmentally sound, cost-effective wastewater management, the Sanitation Districts produce about 200 million gallons of high quality reclaimed water every day. This significant resource provides a supplemental water supply to offset the use of imported water for irrigation, industrial and environmental uses, and groundwater recharge. Over 500 local reuse sites benefit from the Sanitation Districts' reclaimed water program.

Biosolids Management Practices – Biosolids are the treated solids removed during the wastewater treatment process. Reuse of biosolids at the JWPCP began in 1928 when Kellogg Supply Inc. packaged and sold dried biosolids as soil amendments. Today, biosolids are beneficially reused through a variety of management options, e.g., as soil amendments for agriculture, in the manufacture of high-quality compost, and by injection into cement kilns to help reduce NOx emissions.

Urban Runoff – Urban runoff from the Joint Outfall Service Area flows into the Pacific Ocean. Urban runoff is considered to be “greatest single source of pollution to the beaches and near shore waters of the Santa Monica Bay,” according to the City of Santa Monica, and is recognized as a major contributor to the pollution in the Port of Los Angeles as well.

The Sanitation Districts accept and treat the first 1/10 inch of rainfall from 445 rainwater diversion systems in its service area. The Sanitation Districts also currently accept dry weather urban runoff (DWUR) from six permitted diversion structures along the coast; four additional coastal projects are currently under consideration. In addition, a 17-acre marshland is currently being enhanced and restored on JWPCP property that will accept DWUR from the nearby Wilmington Drain. After the DWUR receives treatment in the marshland, it will be returned to the Wilmington Drain.

## Green Programs in Solid Waste

Household Hazardous and E-Waste (HHEW) Collection – The HHEW Collection Program gives Los Angeles County residents a legal and cost-free way to dispose of unwanted household chemicals and E-wastes that cannot be disposed of in the regular trash. The Sanitation Districts partner with the Los Angeles County Department of Public Works to hold HHEW roundups in over 75 cities throughout the county. Over 80% of Household Hazardous Waste and 100% of E-Wastes are recycled.

Landfill Recycling – The Sanitation Districts’ landfills act as recycle centers for materials that are not easily recycled at the city level. Metal, tires, clean dirt, green waste, asphalt, concrete, ash from the refuse-to-energy facilities, and large appliances are all recycled. The Puente Hills Landfill is the largest recycle center in California in terms of the quantity of material recycled. The Sanitation Districts also operate California Certified Buy-Back Centers at the Palos Verdes Landfill and the Puente Hills Materials Recovery Facility (adjacent to the Puente Hills Landfill).

Preserving Open Space – The Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority) was formed in 1994. Using one-dollar per ton added to the disposal fee at the Puente Hills Landfill, the Authority purchased open space in the Puente Hills Wildlife Corridor. To date, the Habitat Authority has purchased almost 2,000 acres of open space, deeding it to the public trust for all time. The Habitat Authority also manages approximately 2,000 additional acres.

## Education

San Gabriel River Discovery Center – The Sanitation Districts are actively involved in the planning of an educational center to interpret the San Gabriel River Watershed and create increased understanding, appreciation, and stewardship for the San Gabriel River region. This educational complex is targeted for Platinum Certification under the U.S. Green Building Council’s LEED (Leadership in Energy and Environmental Design) Program.

Think Earth Foundation – The Sanitation Districts are a founding organization of the Think Earth Environmental Education Foundation. This Foundation provides free, award-winning classroom curriculum for grades pre-K through 8 and focuses on the importance of a clean, healthy environment and what can be done to conserve natural resources, reduce waste, and minimize pollution.

Free-Bus School Program – Field trips to Sanitation Districts’ facilities are provided for 5th - 12th grade classes (within the Sanitation Districts service area) to show firsthand the operation and management of solid waste and wastewater facilities. This program includes the cost of bus transportation and substitute teacher fees.

Sewer Science – Sewer Science is a week-long wastewater treatment laboratory providing in-classroom instruction and lessons. Students create simulated wastewater, clean it through a series of physical, chemical, and biological treatment processes, and test it for various water quality constituents. To date more than 15,000 students have been involved in this program, which advances their knowledge of wastewater treatment and water recycling.

JWPCP Marshland – The Sanitation Districts are currently in the process of restoring and enhancing a 17-acre freshwater marsh located adjacent to the JWPCP in Carson. This \$2 million project will include an outdoor educational center and will be open to the public for tours in the fall of 2008.