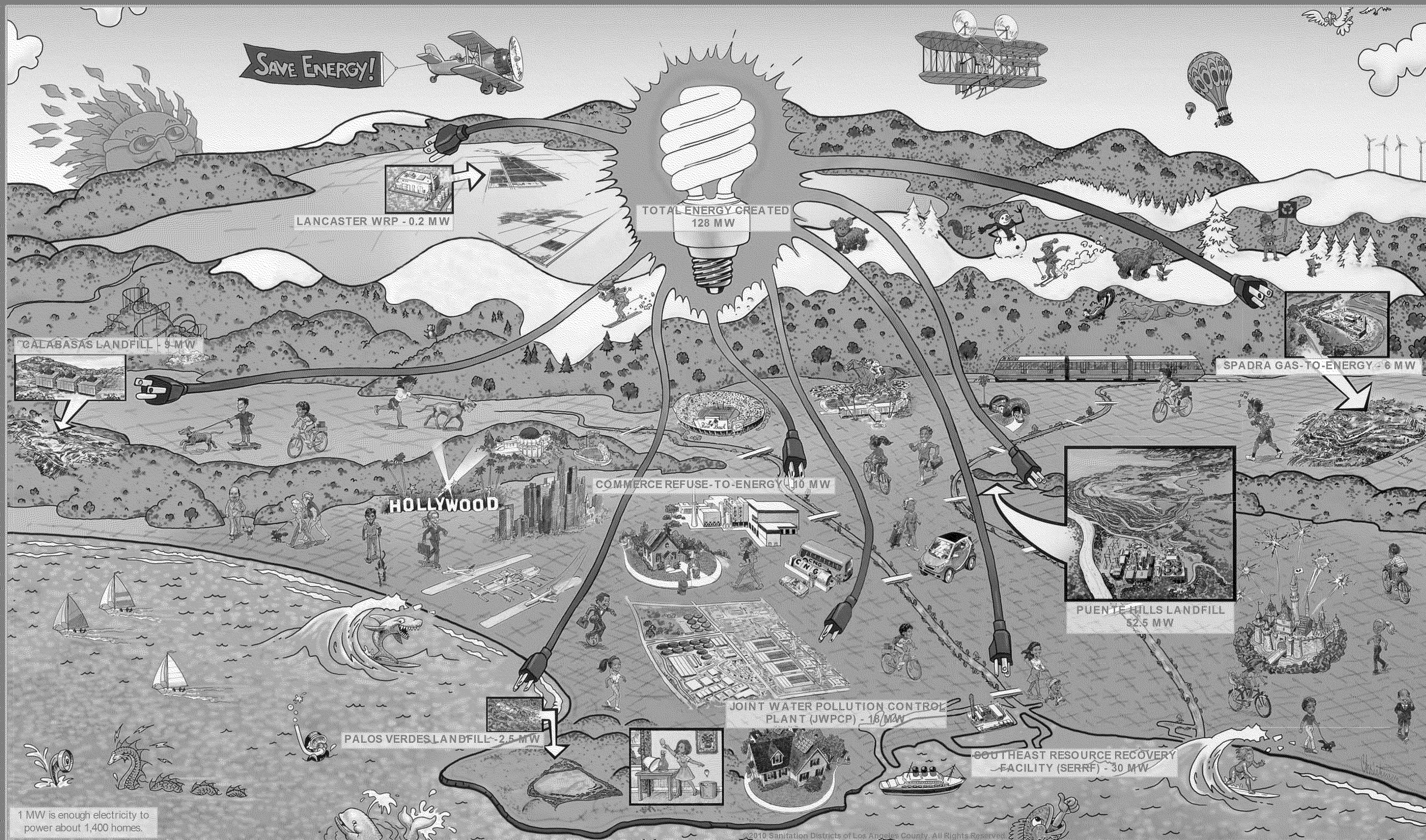
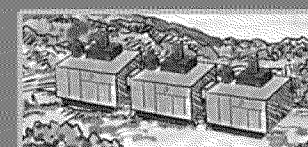


# FROM WASTE, IT'S NATURALLY A GREAT IDEA

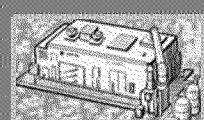


When wastewater leaves your home, it travels to a treatment plant where it is treated. During the treatment process, bacteria break down the wastewater solids and create a methane-rich biogas.

The Sanitation Districts' landfills and refuse-to-energy facilities create renewable energy from your trash! When trash is placed in a landfill, it breaks down to create a landfill gas that contains methane. The gas is collected in pipes, pulled out of the landfill using vacuum, and used as a fuel to produce electricity. Since methane is a greenhouse gas, converting it into electricity keeps it from warming our planet.



- Make sure you switch the lights off when not in use
- Use compact fluorescent or energy-efficient light bulbs
- Carpool or use public transportation
- Ride your bike or walk to the places you need to go
- Encourage solar energy use – the Sun provides





# Energy Resource Management

The Sanitation Districts of Los Angeles County (Districts) operate and maintain regional wastewater treatment and solid waste management systems that provide services to more than 5 million people. This involves treating about 450 million gallons of wastewater per day and managing the recycling or disposal of almost 12,000 tons of municipal solid waste per day.

The Districts' goal has always been to provide these services in the most environmentally sound and cost effective manner possible. To achieve this goal, the Districts have maintained a long-standing practice of effectively managing their energy resources. The Districts have always been at the forefront of tapping renewable resources. As far back as 1938, the gas from wastewater sludge digesters was used to fuel internal combustion engines to generate all the power requirements for the Districts' largest treatment facility.

Using biogas (from both wastewater treatment and landfills) and solid waste as an energy resource has allowed the Districts to conserve fossil fuels, reduce air emissions and provide substantial economic benefits for ratepayers. Electric industry deregulation in California allows the Districts' renewable resources to be competitive with conventional power generation technologies.

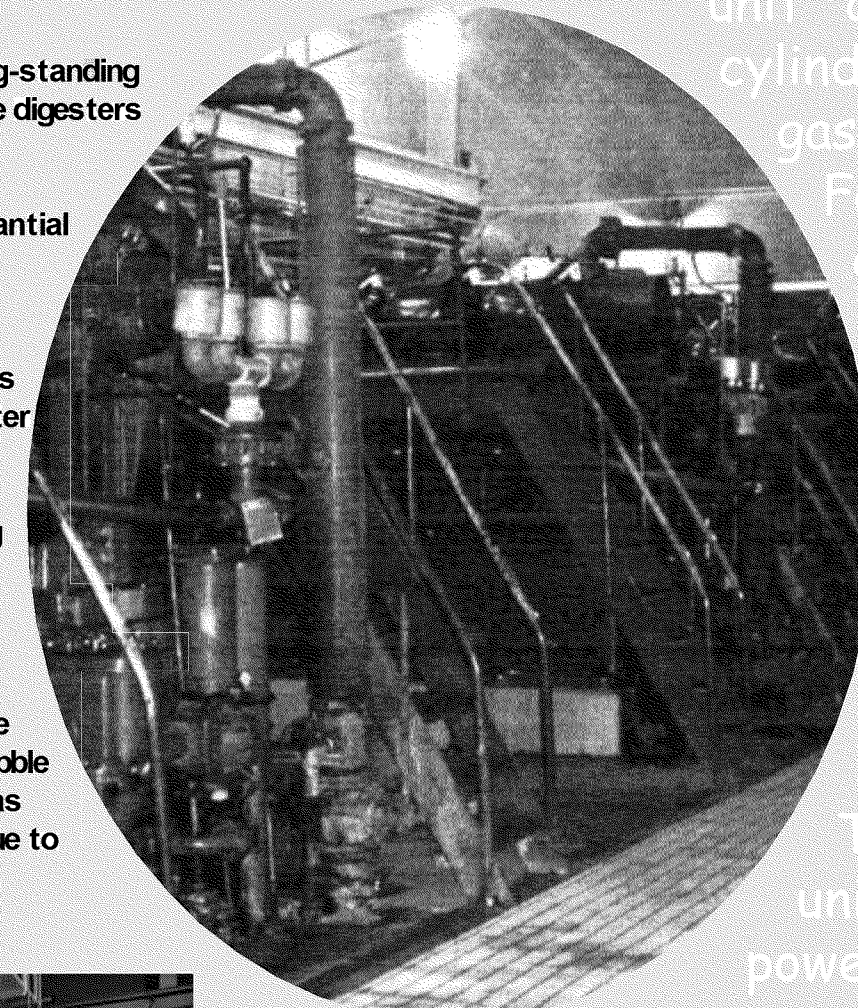
The wastewater treatment plants provide advanced primary, secondary, and in most cases, tertiary treatment of sewage and industrial wastes. Through a centralized solids processing approach, the sludges produced in upstream plants flow to regional processing centers for treatment. The biogas produced during solids processing is used as fuel to generate 18 megawatts (MW) of low cost electricity and provides energy self-sufficiency as well as protection from pricing fluctuations from the local power company or foreign fuel supplies. It is also used for digester heating and building heating and cooling.

The solid waste management system has both landfills and refuse-to-energy facilities. Landfill biogas, which may, if uncontrolled, contribute to the formation of smog, add to global warming and cause odors, is used as fuel in five gas-to-energy facilities producing 70 MW of electricity. The Districts participate in the operation of two refuse-to-energy facilities which burn solid waste to produce 40 MW of electricity. Power generated at landfills is delivered to Districts wastewater facilities, so that more than 94% of electricity used by the Districts will be produced from renewable biogas.

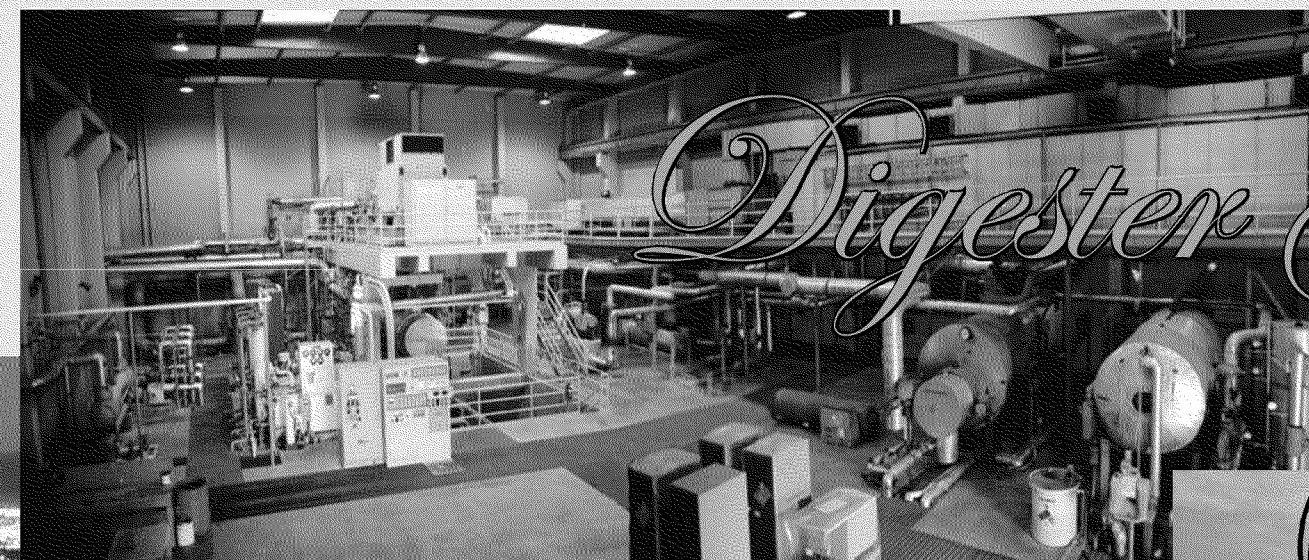
The Districts have been pro-active in evaluating ways to reduce their energy usage. Ongoing research programs investigate ways to cut existing energy usage and monitor emerging, innovative power generation technologies that can provide better alternatives for future Districts' applications. One research program led to the conversion of secondary aeration tanks from coarse bubble diffusers to fine bubble diffusers yielding an immediate 30% energy savings. The Districts pioneered innovative power generation technologies including small gas turbine generators (known as microturbines) and fuel cells that can convert biogas directly into electricity, and will continue to stay in the forefront of tapping renewable resources to balance energy demands, and continue to increase the efficiency of their energy use.

"In June, 1938, a power unit comprising an eight-cylinder Clark Brothers gas engine hooked to a Fairbanks-Morse fifty cycle generator was installed in a newly constructed power house; the Clark engine driving the effluent pump was moved into the power house to drive a similar generator. These two power units furnished all power and light requirements for the plant at that time."

A M Rawm



*Biogas*



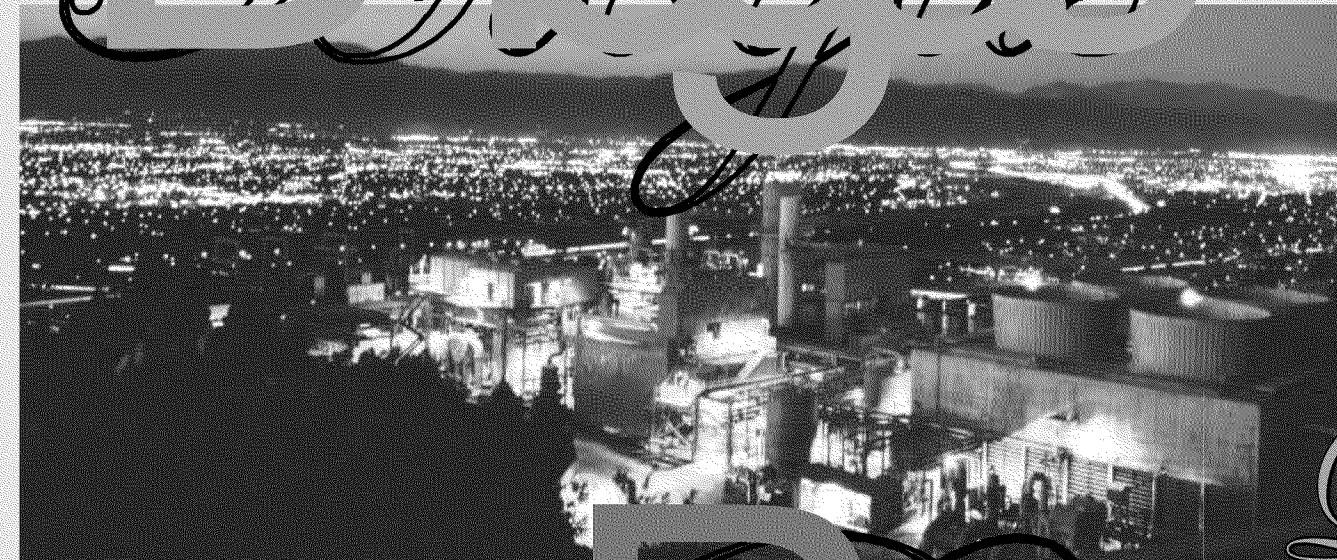
The Total Energy Facility, above, at the Joint Water Pollution Control Plant, in Carson, produces 18 MW of electricity from biogas.

*Refuse*

*Landfill Gas*



Commerce Refuse-to-Energy Facility, above, produces 10 MW of electricity from the burning of solid waste.

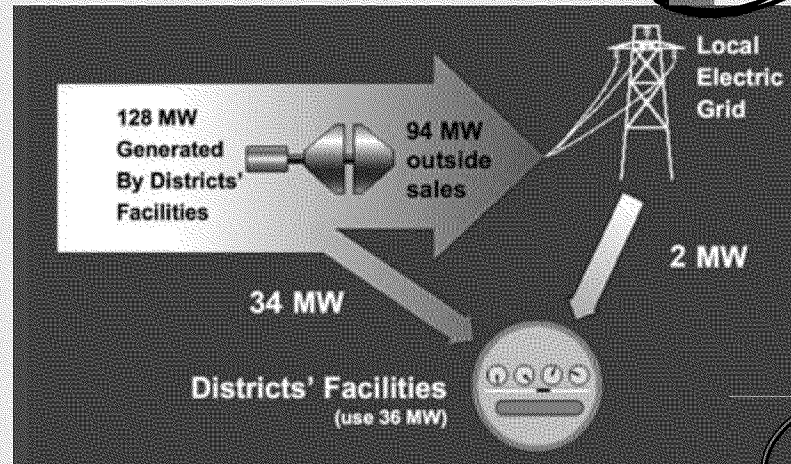


Puente Hills Gas-to-Energy Facility produces 46 MW of electricity from biogas.

*Research*

The Calabasas Landfill uses methane gas in combustion turbines. This plant is establishing new, lower air-emission standards.

The Districts produce enough electricity to power all of its facilities and still have enough left over to supply the needs of 125,000 Southern California homes.



The installation of fine bubble diffusers, above, at the Districts' treatment facilities has reduced energy usage by thirty percent.

*Reducing Demand*

*New Technologies*

