

## POWER GENERATION FROM BIOMASS

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### ABSTRACT

The County Sanitation Districts of Los Angeles County (Districts) are a confederation of independent special districts serving and maintain both a regional wastewater treatment and a solid waste management needs about 5.6 million people in Los Angeles County. The Districts' service area covers approximately 810 square miles and encompasses 78 cities and unincorporated territory within the Country. The role of the Districts is to construct, operate, and maintain facilities to collect, treat and dispose of sewage and industrial wastes and to provide for disposal and management of solid wastes, including refuse transfer and resource recovery. This involves treating approximately 520 million gallons of day of wastewater and managing the final disposal of half of the 40,000 tons per day of nonhazardous solid waste in the county.

The Districts have a long history of utilizing biogas for the production of electricity. In 1938 the Districts employed gas from wastewater sludge digesters to fuel internal combustion engines that provided all the power and light requirements for a treatment facility. This proved to be so successful that the facility was disconnected from the local electric utility. From this beginning the Districts have continued to pursue the economic and environmental benefits of "waste gas". From the Districts' wastewater treatment plants, digester gas is used to fuel engine driven pumps and generates the electricity needed for plant operations. The gas generated at the Districts' landfills is also used to generate for plant operations. The gas generated at the Districts' landfills is also used to generate electricity that is sold to the local utility. The Districts also participated in the development of two facilities; the Districts that produce electricity from refuse combustion operate one of which.

Many benefits can be obtained through the use of renewable resources available as a byproduct of wastewater treatment and solid waste management. For wastewater facilities biogas offers a source of low cost electricity independent of foreign fuel supplies. Landfills can use the gas produced to provide power for the local communities they serve. In many cases this displaces imported power, thus reducing the cost and environmental consequences of high voltage transmission facilities.

This paper provides a description of the Distracts' electrical generating facilities that use either biogas or biomass to produce approximately 140 megawatts of power. These facilitates include digester gas fired turbine and internal combustion engines, three landfill as fired boiler plants, a landfill gas fired turbine and two refuse to energy facilities.

