



LOS ANGELES COUNTY SANITATION DISTRICT

JOINT WATER POLLUTION CONTROL PLANT, CARSON, CA

SYSTEM DESIGN

Operated by the Los Angeles County Sanitation District, the Joint Water Pollution Control Plant (JWPCP) in Carson, CA serves 3.5 million people throughout Los Angeles County. On an average day, the JWPCP treats 280 million gallons of wastewater, making it one of the largest water resource recovery facilities in the world.

Solids collected during primary – and secondary treatment are processed in anaerobic digesters. The JWPCP uses the resulting biogas to fuel **three 9 MW** gas turbines. The turbine exhaust gas heats water, producing steam that powers an 8.7 MW steam turbine-generator. The 'Total Energy Facility' typically generates 20 MW from digester gas for on-site use, enabling the JWPCP to meet most of its energy needs.



To boost biogas production, the JWPCP and Waste Management (WM) have initiated a pilot project to co-digest with food waste. WM collects food waste from restaurants, food processing plants, and grocery stores. The food waste is screened at WM's CORE® facility to remove contamination (e.g. utensils) and blended into a food waste slurry.



The slurry is loaded into tanker trucks, delivered to the JWPCP, and then pumped into closed, sealed storage tanks, where it is mixed for several minutes each hour before being added to the digesters. The mixed food waste slurry is injected into a digester at 9% food waste/91% wastewater solids on a volume basis. The JWPCP can receive up to **84 tons (20,000 gallons)** per day.

- **Feedstock processed:** sludge & food waste
- **Capacity:** 24 3.7 MG digesters
- **Through put:** 4.4 MG sludge & up to 0.02 MG food waste/day
- **Biogas generation:** 5,000 cubic feet per minute
- **Biogas use:** Total Energy facility and boilers
- **Generation:** ~20 MW

"This project leads the way in helping to meet California's organic recycling goals and to provide operational details and lessons to other WWTPs around the country."

-- Dave Czerniak, Senior Engineer, LACSD

PROJECT BENEFITS

The JWPCP digesters provide the following benefits:

- Ensure the facility meets regulatory requirements
- Control odors
- Produce renewable energy
- Create a nutrient-rich fertilizer product

Co-digestion has provided the following additional benefits:

- Diverts organics from landfills, helping CA to meet its goals to increase recycling and reduce greenhouse gas emissions
- Boosts biogas production, generating up to an additional 250 kW of electricity