

Proposed Orange County Sanitation District Food Waste Treatment Policy

How should OCSD structure the tipping fee for digestion of food waste?

Should OCSD conduct a feasibility study for digestion of green waste?

Summary Policy Statement

The State of California limits the volume of organic waste that may be diverted to landfills. The Orange County Sanitation District (Sanitation District) will collaborate with the County of Orange, other local agencies, and waste haulers to find ways to beneficially reuse food waste, a type of organic waste to assist cities in our service area in meeting their diversion requirements while increasing The Sanitation District's energy production.

Background

Whether supplying secondary treated wastewater for the GWRS, creating renewable energy in the form of biogas from anaerobic digestion to produce electricity, or benefiting from the use of biosolids as a soil amendment, the Sanitation District is a resource recovery agency committed to providing resilient and reliable wastewater treatment service while protecting the public health and the environment.

In recent years, there has been a significant change in the regulatory landscape in California related to the diversion of organics such as food, green material, wood, paper, biosolids, digestate, and sludges from landfills. Currently, much of the state's diverted organics are being composted or used as alternative daily cover on landfills. With the phaseout of organics as alternative daily cover, the regulatory shift is creating an organics market for the wastewater sector to provide a solution to manage organics such as food waste by way of co-digestion. There is an opportunity for the Sanitation District to produce additional biogas, reducing the need to purchase electricity from the local utility.

Anaerobic digestion is currently at the nexus of important State of California mandates, namely: (1) organics diversion from landfills (AB 1826 and SB 1383), and (2) increased renewable energy and fuels generation (SB 32 and SB 100). The primary alternatives for organics management are anaerobic digestion and composting – of which anaerobic digestion is the only process offering energy recovery potential. Over the next few years, California's cities and counties, along with municipal solid waste haulers, material recovery facilities, and landfills will need to develop collections, processing, and energy recovery infrastructure to address these state legislations and goals. Existing wastewater treatment plants such as the Sanitation District are uniquely positioned to play a role in the new organics marketplace since solid waste management facilities do not typically have anaerobic digesters, the energy recovery infrastructure in place, or experience regarding the management of biosolids for beneficial use.

In 2017, the Sanitation District completed a comprehensive Biosolids Master Plan (Plan) that provides a roadmap and framework for sustainable and cost-effective biosolids management options and future capital facilities improvement over a 20-year planning horizon. Considering

the timeliness of the regulatory mandates requiring organic diversion from the landfills and increased renewable energy, the Plan evaluated the feasibility of implementing a high strength organic waste receiving program involving the co-digestion of preprocessed food.

The Sanitation District's existing infrastructure isn't well suited for receiving, handling, or digesting green waste. Current digester feed, mixing, heating, dewatering and truck loading facilities aren't designed to deal with cellulosic products in green waste. The highly fibrous material doesn't readily break down and clogs the various systems optimized for sewage sludge treatment. In addition, there may be legal hurdles specified in the California Health and Safety Code, Section 4700, that must be addressed before the Sanitation District could operate a refuse transfer facility.

Current Situation

Project Viability

The Sanitation District's Plan concluded that the costs to construct and operate a food waste receiving facility could be offset by tipping fees charged to food waste processors/haulers and by additional power associated with the increased digester gas production. The Plan recommended that the Sanitation District build an interim food waste receiving station immediately to take advantage of existing digestion capacity of approximately 150-250 wet tons per day at Plant No. 2 and then construct a more permanent facility in the future to coincide with the planned construction of new digesters in Plant No. 2, allowing an additional capacity to co-digest approximately 500 wet tons per day of food waste. The Sanitation District also has at least 6 MW of installed electrical generation capacity that can convert the produced biomethane to electricity and heat.

Based on these recommendations, in 2018 the Sanitation District's Board approved a project (P2-124) to construct an interim (10-15 years) food waste facility to receive, store, and feed preprocessed food waste slurry to the digester complex at Plant No. 2 to generate additional digester gas. This project will be designed to accept approximately 150 wet tons per day of preprocessed food waste and will produce approximately 15 percent more methane gas for on-site energy production, resulting in a greenhouse gas reduction of approximately 10,800 metric tons of carbon dioxide equivalent annually which is equivalent to the annual greenhouse gases generated by approximately 2,000 passenger vehicles. This is consistent with the Sanitation District's Energy Policy (OCSD 16-12) which is to strive to be energy independent by minimizing energy utilization and maximizing useful energy recovery from the sewage it receives. The interim receiving station is scheduled to be completed in 2022.

The final biosolids product currently produced by the Sanitation District is anticipated to be largely unaffected by the addition of food waste slurry. Pilot testing conducted by the Sanitation District indicates that there will be some increased gas production due to mixing sewage sludge and food waste feed stock, but the final biosolids product will remain largely unchanged going to centrifuge dewatering or to final reuse markets.

A draft Preliminary Design Report was issued in June 2019 for the interim receiving facility which included a viability evaluation concluding that the project is economically justifiable based on

project costs and anticipated tipping fees. Final Design work has started and among other important items, the tipping fee and food slurry specifications will be further refined and validated.

There are three large municipal solid waste haulers that have expressed interest in collaborating with the Sanitation District to provide preprocessed food waste for digestion. Of these, two haulers are located within the county and one is located outside the county. Another important partner for the Sanitation District is Orange County Waste and Recycling (OCWR). The Sanitation District has met with OCWR on a couple occasions and they expressed interest in partnering with the Sanitation District to find local solutions to meet SB 1383's organics diversion mandates including in-county biosolids management, composting, food waste co-digestion, and biogas production.

Future Policy Statement

Food Waste Slurry

The Sanitation District will only accept a preprocessed food waste slurry. We do not have available land or air permits to handle, sort, and process solid or green wastes. The Sanitation District will work with other public agencies and waste haulers to develop an industry standard for food waste slurry that specifies water, organic, metal, plastic, and glass content requirements. A common specification for slurry will help all parties make investment decisions.

Food Waste Volume

The Sanitation District has identified available capacity within its infrastructure at Plant No. 2 to accommodate food waste conversion to energy. The processes impacted by food waste conversion are digestion, gas cleaning, gas compression, generation, process heating, biosolid dewatering and biosolids loading. These impacted systems have the capacity to accept 150 to 250 wet tons per day for the next ten years. Beyond ten years, the Sanitation District plans on upgrading its digestion, gas compression, and gas treatment systems. Based on the lessons learned from the interim system and the development of the food waste market, the Sanitation District plans to be able to accept up to 500 wet tons per day when the new digestion, gas compression, and gas treatment systems are completed.

The Sanitation District believes that the full implementation of the current regulations will create a food waste slurry market significantly greater than 500 wet tons per day in Southern California.

Tipping Fee Basis

The acceptance of food waste has the opportunity to more fully utilize the system capacity that already exists for the benefit of the Sanitation District's rate payers.

The Sanitation District staff will develop a base tipping fee rate schedule that meets the following criteria:

- Recover all capital costs to construct facilities within five years (this will allow the Sanitation District and waste haulers to properly invest in processing facilities);

- Recover all operating costs including operating cost, maintenance cost, electricity usage, biosolids dewatering, and reuse costs;

There shall be no credit given for the value of the biogas created by the Sanitation District. The value of the biogas is offset by the cost to gather the gas, clean the gas, compress the gas, and convert the gas to electricity and heat. In addition, there is no way to reliably measure gas production attributable to food waste or sewage sludge, and food waste volume is a small fraction of the sewage sludge production.

Food waste generated and processed within the service area will be charged the base rate and will be prioritized over food waste from outside the service area. This is justified by the fact that the underlying infrastructure of the Sanitation District is already owned by service area rate payers. The Sanitation District contracts with service area waste haulers must provide for a pass-through savings to the Sanitation District rate payers. That means waste haulers may charge for collection and processing of food waste but must disclose to their City or Special District franchise partner the Sanitation District's tipping fees and negotiate pricing adjustments as necessary with City or Special District franchise partners.

If additional capacity exists, but isn't utilized by in service area users, then that capacity may be contracted by out of service area users at a premium to help offset the cost of the underlying infrastructure necessary to process the food waste.

The Sanitation District will pursue grant opportunities to the extent possible to reduce the overall capital and operating cost basis for the program to reduce the tipping fee base rate.

Initiatives to Support Progress Toward the Policy Goal:

Initiative: The Sanitation District will accept a preprocessed food waste slurry from contracted waste haulers that will be fed to existing anaerobic digesters. The Sanitation District will charge a tipping fee to offset its costs for capital construction, operations, handling, maintenance, and biosolids disposal.

Initiative: Design, build, and operate a food waste receiving station. Create a specification for food waste slurry and contract with solid waste haulers to receive and process food waste.