

Re+ Fast Start Action Overview

Non-Residential Food Waste Recycling

Description

Implement policy or pricing strategies and pair with outreach and technical assistance to have businesses source separate their food waste for organics recycling – for example in composting or producing renewable energy. While King County has been a leader on composting, producing energy from food waste is not as widespread. In this recycling process, called anaerobic digestion, food waste is collected, cleaned, and blended into a slurry, then added to digesters – large tanks then use heat and beneficial bacteria to break down organic waste. This non-residential food waste may be co-digested in an existing King County Wastewater Treatment Division (WTD), or dairy facility, or processed on its own in a new facility. The breakdown of organic matter during digestion naturally creates methane that can be turned into a renewable source of natural gas.

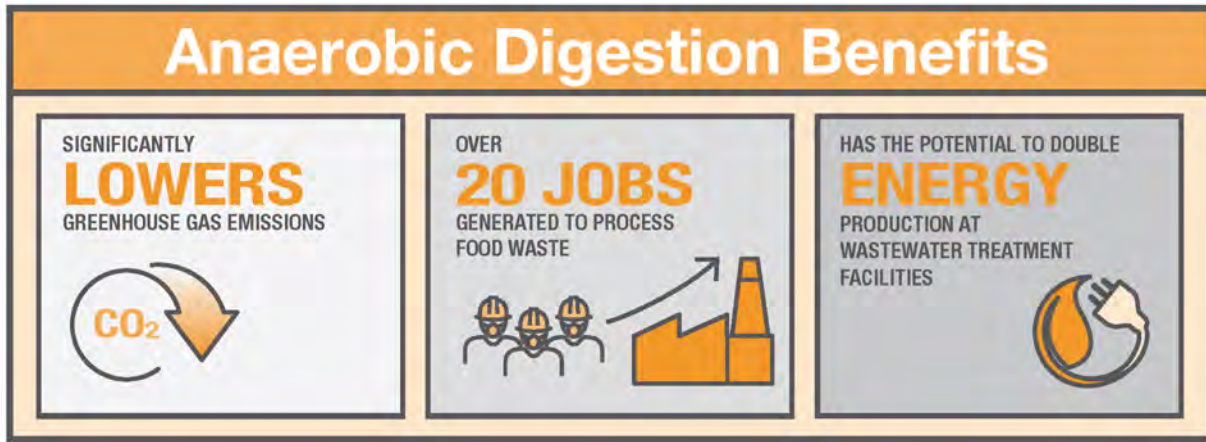
Background

Based on King County's 2019 Waste Characterization Study, food waste made up 16% of the waste stream, roughly 138,000 tons per year. Businesses threw away 65,000 tons of that food waste. Many businesses do not subscribe to organics collection, and instead throw food waste in the garbage. In 2022, Washington state passed the Organics Management Law (HB 1799) which requires most businesses that produce food waste to separate it from their garbage. Once food waste is successfully separated and collected, it can be composted or converted into biogas to create energy through anaerobic digestion and produce a nutrient rich soil amendment. Anaerobic digestion for non-residential food waste provides an opportunity to significantly reduce landfilled food waste and produces a fertilizer-type product that can be used as a beneficial soil amendment.

Benefits

- Diversion potential: 30,000-50,000 tons of food waste per year
- Greenhouse gas emissions reduction: 10,000 to 15,000 metric tons of carbon dioxide equivalent.
 - This is equivalent to the emissions from 11 million to 16 million pounds of coal burned.¹
- Jobs generated: Potentially 23 permanent jobs to process food waste for digestion plus dozens of jobs to build the pre-processing plant.²
- Enhances biosolids fertilizer products.
- Reduced odors from landfill and composting operations.
- The technical assistance program will help drive food waste recycling regardless of processing method.





Considerations

- **Costs**
 - Early estimates for co-digestion suggest building the pre-processing plant where the slurry is made could cost \$10 million.
 - Adding a WTD digester for co-digestion and other associated upgrades could cost \$70 million.
 - Regional dairy digesters have capacity so would not need capital upgrades. They would require a pre-processing plant and would charge a tip fee.
 - Regional composting facilities have capacity to process this food waste now but may reach permitted capacity after 2030.
 - Annual operations and maintenance for co-digestion are estimated to cost \$2.5 million.
 - SWD is exploring options for ownership and operations of the pre-processing facility. Capital costs, operating costs, and revenues vary depending on public versus private ownership and operations.
- **Changes to collection**
 - Beginning in 2024, the Organics Management Law requires large businesses to sign up for organics collection. Additional policy changes or pricing levels that incentivize businesses to sign up for organics collection may be needed. By 2026, all food waste generating businesses that generate at least 4 cubic yards/week must have collection service.
 - More robust organics collection routes will be needed.
 - Haulers and the operator of the pre-processing facility will need to develop a quality control system to keep feedstock quality high. In this system, partners, including the haulers and facility operators will identify high-contamination routes and generators; then work with businesses to increase quality.
 - Haulers will deliver organic waste to the future pre-processing facility. The facility's location, currently unknown, will determine a transportation route to the anaerobic digestion facility.
- **Behavior Change**
 - Customers and/or workers at these businesses will need to separate their food waste from garbage and sustain this behavior going forward.



- SWD and cities will need to dedicate educational resources to guide businesses in diverting food waste towards anaerobic digestion.

Equity and Social Justice Considerations

Non-residential food waste collection for anaerobic digestion reduces methane released from handling and landfilling food waste and reduces odors from landfills and composting operations. Methane is a powerful greenhouse gas that contributes to climate change, which disproportionately impacts historically disadvantaged communities. Methane knows no political boundaries, so methane reductions in King County improve the environment both in and out of the County. Capturing biogas from waste also replaces petroleum-derived fuels and reduces the community and climate impacts of extracting and refining petroleum.

The digestion process may require a new pre-processing facility. SWD will work to ensure that the placement of the facility does not disproportionately impact frontline communities. If sited strategically, anaerobic digestion can decrease waste trucking volumes and reduce transportation impacts on communities.

Next Steps

SWD is collaborating with WTD and other potential partners on developing a more detailed implementation plan. Timeline components will include:

- Coordination and collaboration on policy changes with King County cities.
- Develop an outreach and technical assistance program proposal to help businesses meet Organics Management Law requirements to set up or expand systems to source-separate and recycle their food waste by in 2023.
- Work with haulers on food waste collection.
- Plan, site, design, and build any necessary SWD, WTD, or other facilities.
- Begin anaerobic digestion of food waste.

Questions?

Email

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¹ <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

² https://www.epa.gov/sites/default/files/2016-11/documents/final_2016_rei_report.pdf

