



BIOENERGY IN THE WASTEWATER SECTOR

Climate scientists agree that reducing methane and other Short-Lived Climate Pollutants is the most urgent step we can take to tackle climate change. California's wastewater treatment plants (WWTPs) are already doing this by cutting methane emissions from wastewater. They can do even more by taking in food and other organic waste that must be diverted from landfills. By converting wastewater and food waste to energy, WWTPs provide a double benefit for the climate: they reduce methane emissions from decomposing waste at landfills and reduce the need for fossil fuels by producing low carbon biogas that can be used to replace diesel, natural gas, and other fossil fuels.

California's WWTPs already generate significant amounts of renewable electricity from the biogas that they generate, but they have the capacity to do much more. The State Water Resources Control Board has estimated that California's WWTPs have sufficient capacity onsite to convert 70 percent of California's food waste (which currently goes to landfills) to renewable power and low carbon fuels. This is an extremely cost-effective way to reduce landfill waste since WWTPs already have much of the infrastructure needed to convert waste to energy onsite. Increasing biogas and renewable hydrogen production at WWTPs would provide many other economic and environmental benefits as well.



LOS ANGELES COUNTY
SANITATION DISTRICTS
PRODUCES 95% OF ITS ONSITE
POWER NEEDS FROM
WASTEWATER BIOGAS AND
DIVERTED FOOD WASTE, SAVING
MILLIONS OF DOLLARS AND
MILLIONS OF TONS OF CLIMATE
POLLUTION ANNUALLY.

Bioenergy Potential at Wastewater Treatment Plants.

California's WWTPs could take in about 3.5 to 4.5 million tons of food waste annually and convert it to biogas. That is enough food waste to generate about 16 billion cubic feet of biomethane annually, equivalent to about 140 million gallons of gasoline or diesel each year. Biogas generated at WWTPs could also be used to provide renewable electricity, pipeline biogas, low carbon heating or cooling. It can also be converted to hydrogen and used for non-combustion power generation and long duration energy storage.

Climate Benefits. California law requires major cuts in methane and black carbon emissions – two of the most damaging climate pollutants – by 2030. As part of the methane reduction requirement, local governments must divert 75% of organic waste away from landfills, which are the biggest source of methane emissions in the state. That organic waste – food, yard, and woody waste – can be converted to energy and other products and WWTPs can help with this. California’s WWTPs could convert nearly three-quarters of all that food waste to low carbon fuels and power. Converting food waste to energy provides the greatest benefit to the climate because it cuts methane emissions from landfills and from the fossil fuels that bioenergy replaces. When the biogas generated at WWTPs is used to replace diesel, then it cuts methane and black carbon emissions, providing the greatest possible climate benefits.

Public Health Benefits. Converting organic waste to bioenergy cuts air and water pollution from landfills and cuts air pollution from fossil fuels like diesel and natural gas. Using bioenergy in place of diesel cuts toxic air contaminants, smog-forming pollutants and other air and water pollutants. Since many WWTPs are in or near disadvantaged communities, increasing bioenergy production – especially when it’s used to replace diesel in heavy-duty trucks and power backup generators – is an important way to reduce environmental justice impacts.

Jobs and Economic Development. Increasing bioenergy production from WWTPs can provide revenue and jobs in local communities around the state. Bioenergy projects create jobs and economic development in the fields of construction, operations and maintenance, fueling, transportation, power contracting and more. WWTPs can also generate revenue by selling the power or fuel to utilities, vehicle fleets, or other buyers.