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San Jose Waste Facility Aims to Sell Biogas Electric Power to PG&E

By Jonathan Marshall

To help San Jose achieve its ambitious municipal sustainability objectives, a new commercial facility that creates methane while processing thousands of tons of organic waste plans to sell excess power to PG&E under a relatively new renewable feed-in tariff program for small renewable generators.

Located on an old 39-acre landfill site in north San Jose near the southern tip of San Francisco Bay, the new waste-to-energy plant is said to be the largest "dry fermentation anaerobic digestion" facility of its kind in the world. In its first phase, which just opened days ago, the plant can divert up to 90,000 tons of commercial organic waste each year from landfills into 16 "anaerobic digesters," which use bacteria to break the waste down in an oxygen-free environment.

One of the main byproducts of that three-week fermentation process is biogas, mostly methane, which might otherwise escape into the atmosphere if buried in a traditional landfill. Methane is an extremely potent greenhouse gas, at least 20 times more powerful than carbon dioxide per ton at contributing to global warming. The plant will initially capture about 125 million cubic feet of methane a year.

The San Jose facility will turn waste into energy.

The biogas in turn will fuel an electrical generator capable of producing about 1.6 megawatts (MW) of renewable power. The facility plans to sell excess power to PG&E if they succeed in securing a contract under a relatively new program available to renewable energy projects up to 3 MW in size.

The project is being developed by Zero Waste Energy Development Company (ZWEDC), a joint venture between privately owned and local companies GreenWaste Recovery and Zanker Road Resource Management. The organic waste is provided to ZWEDC under a 15-year contract with the City of San Jose. When fully built out, the plant will be capable of handling up to 270,000 tons of organic waste annually. The project is a key element of San Jose's Green Vision, which calls for eliminating all new landfill waste by 2022.

"Our companies already process a large portion of the City of San Jose's organic waste instead of burying it in landfill," explained Rich Cristina, ZWEDC's president. "Extracting and utilizing the energy value of organic materials to power our other resource recovery operations is the next evolution for our family of companies."

Hundreds of landfills and wastewater plants are now capturing and using biogas.

Around the country, hundreds of landfills and an estimated 900 wastewater plants now capture and use renewable biogas created by anaerobic breakdown of organic waste. Three years ago, NEXT100 profiled an award-winning project of Waste Management Inc. at Altamont Landfill, which converts biogas into liquid fuel to run several hundred clean-air vehicles.

PG&E has long been an active purchaser of biomass- and biogas-based renewable energy. As of Jan. 1, 2013, the utility had 20 contracts for 68 MW of biomethane power capacity. In 2012, PG&E accounted for more than 70 percent of all bioenergy production contracted to California's investor-owned utilities.

"The interest in biogas is growing very quickly," Julia Levin, executive director of the Bioenergy Association of California, told the *San Jose Mercury News.* "San Jose is on the cutting edge, but cities across California are trying to figure out how to better handle their waste. Biogas closes the sustainability loop on so many levels."

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