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## Will food waste power homes in the future?

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Three years ago, I visited a plant just outside of Corvallis, Ore. in which farmers Bill and Karla Chambers are harvesting methane-rich gas from decomposing food scraps to [produce enough electricity for 1,100 homes](#). As Bill and I stood together, watching pumpkin guts pour into their maceration tank, a whole new universe of possibilities opened up before me. All that food rotting in dumpsters behind restaurants and food processors is unharnessed potential electricity.

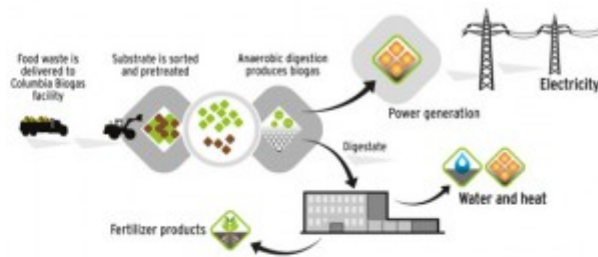
Biogas plants, also called anaerobic digesters, completely reimagine the traditional waste stream; what once moved in a straight line to the landfill and burped greenhouse gases along the way, now has the ability to cycle in an endless loop of energy.

Now someone here in Portland, Ore., is ready to break ground on a food scrap-to-energy plant. Later this year, [Columbia Biogas](#) will begin construction at the outskirts of the city. The company will collect food waste from metro-area grocers, restaurants, and food and beverage manufacturers, and process the scraps in a tank filled with bacteria.

In an oxygen-free environment, the microorganisms consume the fats, sugars and proteins, and let off methane-rich biogas. It's not unlike the digestive system of a cow, but this cow's flatulence will be harnessed by a co-generator to make three megawatts of power, enough electricity for 3,000 Portland-area homes.

According to the Portland-area's Metro government, the metropolitan area produces 247,000 tons of food waste and food soiled paper products annually, which would fill a football field 100 stories high. Beginning in 2013, Columbia Biogas expects to divert and process approximately 70,000 tons per year of solid and liquid food waste; by 2018, that trash no longer headed to the landfill is set to increase to 100,000 tons.

Along with electricity and heat, the biogas plant will produce clean, filtered water and the left-over digested solid and liquid materials, which are ready-made, nutrient-rich fertilizers that Columbia will sell to regional farms.



*How food waste gets up-cycled Courtesy Columbia Biogas*

The food scraps that Portlanders drop for curbside pickup won't head to Columbia because they're mixed with yard debris, which doesn't make for the richest energy source. In the enormous stomach that is the biogas digester, the ideal material is not roughage—although a little keeps the system running smoothly—but

sugars and starches that drive the bacteria to high levels of digestion and gas production. “Think of when you eat a croissant; your blood stream goes ballistic,” explains John McKinney, Columbia Biogas’ president.

Both Stahlbush Island Farms and Columbia Biogas plants are among a small but growing number (in the hundreds) of digesters here in the United States, primarily concentrated at wastewater treatment facilities. However in Europe, this technology is becoming commonplace. Germany, the world biogas leader, was operating approximately 6,800 units last year, producing around 3% of the nation’s share of electricity.

Minimizing the biogas plant’s odor—one of the biggest concerns for neighbors near the new plant—has been a major focus of the design. Columbia has leaned on the world’s most experienced topical engineers to design and model effective systems involving chambers within chambers and air filtration. McKinney has also worked closely with neighbors to make sure that the surrounding community has buy-in and feels respected and heard.

Ecotrust is helping the company assemble its financing, which includes New Markets Tax Credits, an innovative federal tax credit program used to spur investment and create jobs in economically distressed communities. The financing is scheduled to close in May. Construction itself will begin shortly thereafter, creating approximately 85 jobs over the course of 12 months. The subsequent plant operation will support 20 full-time jobs and a number of indirect jobs. In addition, the company will make a significant investment in local hiring and training and will fund a neighborhood enhancement program to support projects and organizations in the surrounding area.

Biogas plants offer a working example of *upcycling* materials from low performance, low usefulness — in this case, climate-warming food waste — to higher value: fertilizer and energy. And it’s a method that could be replicated in all sorts of locales.

