

Small & Local Energy - Neal Bennett

We Want Your Waste? The cause of sustainability can be viewed through many lenses. One such lens is recycling. Green Broad Ripple has the goal of full waste stream recycling in our community. In 2008, Brenda Rising-Moore of Union Jack Pub began the glass recycling program for the bars and restaurants located on the city block known as Broad Ripple Square. This was a giant first step for this cause. Furthering this initiative, GBR is planning to introduce an old technology whose time has once again surfaced for processing our food waste into energy and compost. Anaerobic digestion (without oxygen) is just such a means. The concept has been around since 1859. However, the use of this technology is just starting to gain momentum. The biodigester is a device that utilizes several specific types of bacteria to break down waste components (organic materials) into base compounds including methane gas based biofuel and nitrogen rich fertilizer. For a system to be sustainable the input energy must be renewable and the output product must be a resource that reciprocates the process. In other words, waste = food, but only for an organism from a different kingdom. The chance to turn a waste liability into an energy asset through science is a practical solution.



Prototype standalone trailer-mounted steady system with solar thermal collector by Sustech

Input of organic waste to the environment is constant. This can be human or animal waste, dead vegetation, food leftovers, etc. That is how the system works. In our case, these materials end up in landfills or treatment plants. What a waste! Pun intended. Instead, these materials should be placed in a digestion unit. A biodigester can completely breakdown the input material within 20 - 30 days, and voilà, you end up with nitrogen rich fertilizer that has little to no odor. This is because the methane gas is removed from the input material and used as a biofuel to power generators for electricity. Often, so much electricity can be produced from one of these digesters that whole buildings can be powered with enough left over energy to sell back to the grid. Now that is a smart grid if there ever was one.

The output fertilizer can be used for many applications, from aquaponic growing to further compost enrichment. This is a value-added resource that can be sold to area farming operations for a profit. So, I can create free electricity and a valuable commodity all from the natural activity in my belly? You betcha! This method of managing waste is already being used in pig and cattle farms in the U.S. and starting to be used in the municipal waste water treatment facilities in Europe.

GBR plans to construct a pilot biodigester that will use the food waste from our local restaurants as the input. This material will be digested and turned to electricity to offset the utility cost for those restaurants. If you are interested in this concept, I recommend viewing the Power from Poo article on the Discovery Channel website:

<http://dsc.discovery.com/news/2008/07/24/manure-poop-energy.html>