

## Turning Trash into Electricity

By Holly Martin

*Recently I had the opportunity to visit a "Waste-to-Energy" facility, where I saw first-hand how trash is converted to electrical power, economically and pollution-free.*

This particular county's tons of garbage are collected at a transfer station and shipped to the plant in large rectangular containers on rail cars. On its journey, the trash passes through radiation detectors, to prevent contamination from radioactive sources in medical equipment or industrial gauges.

Once it arrives at the plant, trucks transfer the garbage to a holding pit, dumping it into a covered pile that reaches three or four stories high. From steel cross-beams overhead, two 10-foot claws slowly open, as they descend on the stinking, gray mass, dropping, closing, and pulling up giant "handfuls" of ripped plastic bags. Rising to the roof, the claws slide to the edge of the feed chute, open and dump their contents into a roaring furnace.

And that's when the real fun begins. Using a sophisticated air circulation and moving grate design, the trash moves down the chute and burns, heating the boiler water into steam. The steam pushes the giant turbines of a generator, creating electricity.

Afterwards, the cooled steam flows through a state-of-the-art air pollution control system, where 99 percent of the toxic gases, such as sulfur dioxide and hydrogen chloride, are trapped, and tiny dust particles are filtered out.

Meanwhile, large chunks of solid scrap metal that didn't burn get recycled and reclaimed for other uses.

The only thing left is ash, reduced to about 10 percent of the original volume of trash. This gritty gray ash gets hauled by rail to a lined landfill, where rain can't leach down through it and contaminate the groundwater.

At the plant I visited, the system created plenty of electrical power for its own energy needs, with enough left to export to the county's electrical grid, making a profit for the privately-owned facility.

My only question is: Why isn't every county in every state in every country doing this?

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Holly Martin writes about energy efficiency and environmental engineering. For help in clearly communicating your technical product or service in everyday language, visit <http://www.martinhitech.com>.

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