

Big Money Talks: What's Up With Waste-To-Energy?

Written by William C. "Bill" Livoti
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For those unfamiliar with “waste-to-energy” (WtE), it’s the process of burning municipal wastes in large furnaces to produce steam that, in turn, is used to drive turbines that generate electricity. WtE has always interested me.

During a recent tour of a waste-to-energy plant in Central Florida, the conversation turned to our National Energy Policy (or to be more specific, the lack thereof) and Federal tax credits for renewable energy. My host shared some alarming facts with me—*along with his concerns and frustration*.

His facility had recently been acquired by a company that has patented a promising WtE technology called “Advanced Thermal Recycling” (ATR®). Although the plant is now using ATR, it’s limited in how much power it can produce due to—*get ready for this*—lack of trash! Here’s our dirty little secret: More than half the waste produced in this country goes into landfills. Only a quarter to a third is recycled, and a very small amount is used for energy recovery.

I left that Central Florida operation enlightened by the innovative technology I had seen, but bewildered as to why our country has failed to embrace waste-to-energy as a solution to a couple of nagging problems (i.e., where do we find new sources of energy and what can we do about our ever-growing mountains of waste).

Looking back at the history of WtE in the United States, it seems as though both politics and special-interest groups may have had a hand in running the long roller-coaster ride this viable technology has found itself on.

A Brief history of WtE in the U.S.

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- 1885: U.S. Army builds the first garbage incinerator on Governor's Island in New York Harbor, and Allegheny, PA, builds the first municipal incinerator.
- Early 20th century: Some U.S. cities begin generating electricity or steam from burning waste.
- 1920s: Atlanta sells steam from its incinerators to the Atlanta Gas Light Co. and Georgia Power Co.
- 1970: Clean Air Act ends open burning at U.S. landfills, opening the door for WtE technology and forcing cities to look at this type of technology with regard to trash disposal.
- 1975: The first privately built WtE plant opens in Massachusetts.
- Late 1970s: The Federal government begins funding feasibility studies for local governments interested in setting up new WtE plants.
- 1980: The 1980 Energy Security Act provides insured loans, loan and price guarantees and purchase agreements for WtE projects using municipal solid waste.
- 1980: The Energy Security Act authorizes research and development for promoting the commercial viability of energy recovery from municipal waste.
- 1986: The Federal Tax Reform Act (FTRA) is implemented, which both helped and harmed the development of WtE facilities. While the FTRA extended Federal tax credits available for such facilities to 10 years, it unfortunately repealed the tax-free status of WtE plants that were financed with industrial development bonds.
- 1990s: With the expiration of tax credits, WtE plants begin to fall out of favor.
- 2007: The U.S. has 87 WtE facilities, consuming about 31.4 million tons of solid waste (which represents 12.5% of all municipal solid waste disposal).
- 2010: Eighty-six WtE plants with the capacity to process more than 97,000 tons of municipal solid waste per day are operating in 24 states.
- 2012: There is a sudden increase in WtE sector activities as companies begin developing new technologies for converting municipal garbage into electricity, heat and biofuels.

Interesting WtE Facts

Estimates by the U.S. Environmental Protection Agency (EPA) and *BioCycle* magazine on the amount of U.S. waste and modes of disposal give some indication of the potential we have with waste-to-energy technology. Look at the accompanying tables and consider the following:

- Approximately one ton of waste will produce 525 kWh of electricity (roughly what a quarter-ton of coal or a barrel of oil produces).
- During combustion, the volume of waste material is reduced by about 90%, and its weight by 75%.

Fifteen states have categorized waste-to-energy as a resource in their renewable portfolio standards. Yet, while some Federal laws have categorized waste-to-energy as a renewable resource, some Federal and state tax advantages given to other renewable resources ARE

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NOT available to WtE facilities. Furthermore, as you might expect, special-interest groups in various parts of the country staunchly oppose waste-to-energy.

U.S. Waste Disposal

	EPA Estimate 2006	BioCycle Estimate 2006
Amount of Waste Generated	251.3 Million Tons	388 Million Tons

Mode Of Disposal	EPA Estimate 2006 (Percent)	BioCycle Estimate, 2004 (Percent)
Combusted	12.5%	7.4%
In Landfills	55%	64.1%
Recycled or Composted	32.5%	28.5%

Source: U.S. Environmental Protection Agency (EPA) and BioCycle Magazine.

Renewable energy and waste disposal

From a semantics perspective, although waste-to-energy may not actually be a renewable source of energy, it most certainly is saving our environment. I would definitely categorize WtE as a "Green Solution" and submit that it should be subsidized by Federal tax credits. This technology has a future: What better way to kill two birds with one stone?

Like any other energy source, however, there are downsides: Emissions, odor from the waste prior to incineration, convoys of trash trucks and the proverbial engine blocks that could be thrown by irresponsible individuals into dumpsters and, in turn, destroy WtE processing equipment are just a few of them. Can these issues be overcome? Given the technology available today, I think so.

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My next column (coming in August's MT) will discuss how a WtE plant works and more. **UM**

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Sources

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