

Climate Change: Garbage Gets Fresh Look as Source of Energy

By JEFFREY BALL



Article

HEMPSTEAD, N.Y. -- Times change, and yesterday's environmental problem starts to look like today's solution. That is what is happening with trash.

Over the past two decades, the U.S. has shut down hundreds of pollution-spewing waste incinerators on the belief that burning detritus was a bigger environmental sin than burying it. Today, most American garbage is sent to landfills, some spanning hundreds of acres miles from the cities that generate the refuse. New York City, which tosses about eight million tons of nonindustrial trash each year, trucks much of it to big landfills in states such as Virginia and Pennsylvania.

Landfills have been convenient. But they are falling out of favor as improved technology and changing environmental priorities start to upend the old thinking about garbage.

Past orthodoxy held that burning trash was bad because it spewed toxic substances into the air. In an era when the big environmental threat was localized pollution like smog and cancer-causing plumes, landfills seemed the lesser evil.

Dirty air is still a concern, but now it has been eclipsed by fears of global climate change. In that calculus of environmental harm, recent research suggests, burning trash is better than burying it.

The appeal of most modern incinerators is that they don't only torch trash. They also use the heat from the incineration to boil water, which creates steam, which in turn generates electricity. Yet trash incineration produces just 0.4% of the country's electricity. Even if all U.S. garbage were burned, it wouldn't produce anywhere near enough power to meet the country's energy needs. But as concern about climate change grows, any renewable source of energy -- even a pile of garbage -- seems appealing.

Landfills, too, produce potential fuel -- in the form of methane, which can be captured and used to generate electricity. But a recent study by U.S. Environmental Protection Agency researchers said that most landfills fail to capture all of their methane, a potent greenhouse gas. The study concluded that incinerating a ton of trash emits at least 35% less greenhouse gas and yields 10 times as much electricity as burying it.

Old incinerators were infamous polluters. They coughed out large quantities of soot, the components of acid rain and carcinogenic dioxins.

John Waffenschmidt, a 53-year-old New Yorker who is a vice president for Covanta Energy Corp., the country's biggest owner of waste-to-energy plants, recalls delivering newspapers as a boy in the city in the 1960s. "I'd go out in the morning and there would be little flakes coming down," he says, "because there were 4,000 or 5,000 apartment-building incinerators."

The energy crisis of the late 1970s prompted a push for plants that burned trash to make electricity. Today, 87 waste-to-energy plants are operating in the U.S., with the biggest clusters in Florida, New York and Minnesota.

Some 13% of U.S. garbage is burned -- far less than the 54% buried in landfills and the 33% that is recycled. The modern plants turn prodigious piles of trash into ash yet often sit in the middle of heavily populated areas. New York's Long Island has four incinerators, one of the densest concentrations in the country. Its biggest, a Covanta plant in the town of Hempstead, burns 950,000 tons of garbage a year, right next door to a strip mall. Its 39-story steam tower is the tallest structure on Long Island.

Trucks carrying trash from Long Island and New York City roll into a cavernous room in the plant at a rate of about one every five minutes. The trash is pushed into another room, the "pit," where a crane operator tosses it around with a nine-ton steel claw. He is "fluffing" the rubbish -- mixing in air to help it burn.

After being fluffed, the trash moves by conveyor belt into furnaces, where it is incinerated at about 2,000 degrees Fahrenheit, creating the heat that is used to generate electricity.

Today's incinerators are markedly cleaner than their predecessors, yet they still pollute. "One percent of a very toxic substance is still a very toxic substance," says Marchant Wentworth, a renewable-energy campaigner with the Union of Concerned Scientists, an environmental group.

Trash disposal of any sort is problematic. Ideally, society would produce less trash. Recycling is the next-best option.

In Congress and in many state capitals, lawmakers are considering whether to endorse trash incineration as a "renewable" source of power. A green imprimatur would be a boon to the trash-burning industry, which is lobbying feverishly for the move.

Covanta's Hempstead, N.Y., incinerator is applying for permission to expand and burn more trash. Meanwhile, Long Island's main highways, like the roads leading out of New York City, are filled with trucks ferrying the rest of the area's garbage to landfills in other states.

Write to Jeffrey Ball at jeffrey.ball@wsj.com

Further Reading

- The best way to deal with trash is to produce less of it. The next-best way is to recycle more of it, according to the U.S. Environmental Protection Agency. But that still leaves loads of trash, and burning it to produce electricity is better than burying it in a landfill, [the EPA says](#). Incinerating a ton of trash emits at least 35% less greenhouse gas and yields 10 times as much electricity as burying it, according to [a recent study by EPA researchers](#).
- Today, the U.S. burns 13% of its trash; it sends 54% of its trash to landfills and recycles 33% of it. Other countries, particularly countries in Europe that have less available space for landfills and fewer domestic fossil-fuel resources, burn more of their trash, according to a [study by the European Environment Agency](#).
- [A bill](#) drafted by Congressional Democrats would give incineration, known as "waste-to-energy," a boost. The bill would require utilities to produce 20% of their electricity from renewable-energy sources and energy-efficiency improvements by 2020. The bill's current version defines waste-to-energy as one form of renewable power, along with sources such as the wind and sun.
- Many environmentalists worry that encouraging trash incineration will impinge on recycling efforts. [A 1997 report](#) by the Natural Resource Defense Council's Allen Hershkowitz argues that recycling rates could be dramatically improved with more effort. [A 2008 study](#) by trash consultant Eileen Brettler Berenyi concluded that trash incineration isn't restraining recycling. Her study, partly funded by the trash-incineration industry, found that U.S. communities with waste-to-energy plants tend to have higher-than-average recycling rates.

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