



Frequently Asked Questions About...

Waste-to-Energy Facilities

What is waste-to-energy?

Waste-to-energy is a process where facilities burn waste in order to create power, or electricity. The national focus on developing renewable energy sources has resulted in increased interest in developing waste-to-energy facilities. Maryland's Renewable Portfolio Standard requires that 20 percent of Maryland's electricity be generated by renewable energy sources by 2022. Until 2018, electricity and steam produced from waste-to-energy facilities are eligible for renewable energy credits through 2018. Waste-to-energy facilities in Maryland produced approximately 17 percent of the total renewable energy generated in Maryland in 2007.

There are currently three waste-to-energy facilities in Maryland—the Wheelabrator facility in Baltimore City, the Montgomery County Resource Recovery Facility in Dickerson, and the Harford County Resource Recovery Facility.

How does waste-to-energy compare to disposing of waste in landfills?

Waste-to-energy facilities are an alternative to landfilling the solid waste that remains following the extraction of recyclable materials from the waste stream. Although Maryland counties continue to substantially exceed State-mandated recycling rates, the State still produces 21,000 tons per day of solid waste that requires proper disposal.

Both types of facilities have environmental impacts. Landfills must be designed and managed to control the migration of landfill gas and the formation of leachate and to prevent contamination of groundwater. Landfills produce volatile organic compounds (a pollutant that forms ground-level ozone) and methane, a greenhouse gas that is 20 times more effective in trapping heat in the atmosphere than an equivalent amount of carbon dioxide.

Waste-to-energy facilities emit volatile organic compounds, nitrogen oxides (which also forms ground-level ozone, and when deposited into the Chesapeake Bay contributes to nutrient pollution of the waterway), mercury and other pollutants. Both types of facilities are subject to stringent State and Federal environmental permitting requirements.

Do waste-to-energy facilities adversely affect recycling rates?

Concerns have been expressed about the impact of waste-to-energy facilities on recycling rates—that waste-to-energy acts as a disincentive to recycling. In Maryland, however, the two counties with waste-to-energy facilities are among those jurisdictions with the highest recycling rates. European countries that rely heavily on waste-to-energy to manage solid waste also have high recycling rates.

Reducing waste and increasing recycling and reuse is a top priority for MDE. While effective waste reduction and recycling programs may one day eliminate the need for waste disposal facilities altogether, projected population growth in the United States will likely ensure the continued need for waste disposal facilities for some time to come.

What are the environmental impacts of waste-to-energy facilities?

Combustion of municipal solid waste produces emissions of acid gases, nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter, metals, including mercury, and dioxins/furans. As a result, waste-to-energy facilities are subject to stringent air pollution control requirements. All three existing waste-to-energy facilities in Maryland are equipped with scrubbers to control sulfur dioxide and acid gas emissions, fabric filter baghouses or electrostatic precipitators to control emissions of particulate matter and metals, and activated carbon injection controls to reduce mercury and dioxin/furan emissions. In addition, both Wheelabrator and the Montgomery County Resource Recovery Facility are equipped with selective catalytic reduction technology to control NO_x emissions. Any new waste-to-energy facilities would be required to adhere to strict air pollution requirements.

Are waste-to-energy facilities significant generators of greenhouse gases?

Waste-to-energy is generally a lower carbon alternative to landfills. Decomposition of solid waste in landfills produces methane, a greenhouse gas that is over 20 times more effective in trapping heat in the atmosphere than an equivalent amount of carbon dioxide. Waste-to-energy facilities produce no methane and overall lower carbon dioxide emissions per ton of waste disposed or combusted than landfills. However, the level of carbon benefit is affected by the distance the solid waste is transported and the mode of transportation that is utilized.

Waste-to-energy facilities also recover ferrous and non-ferrous metals that are not ordinarily recovered by residential curbside recycling programs. Recovery and reuse of these materials can save on average 75 percent of the energy needed to produce the same amount of virgin steel.

What about mercury emissions from waste-to-energy facilities?

Mercury bioaccumulates and is persistent in the environment. Nearly all publicly accessible lakes and impoundments, the Bay and some tributaries in Maryland are designated as impaired for mercury, and fish consumption advisories have been issued for 10 species of fish due to mercury levels. As a result, Maryland must continue to take advantage of every opportunity to reduce mercury releases.

In 2009, Maryland sources emitted a total of 1,538 pounds of mercury. Of that number, the three waste-to-energy facilities reported emissions of 114 pounds. Approximately 73 percent of mercury deposition in Maryland comes from out-of-state sources. By 2014, once the Healthy Air Act has been fully implemented to reduce mercury emissions from power plants, and other sources reduce mercury emissions due to proposed federal regulations, it is estimated that Maryland sources will emit approximately 520 pounds of mercury annually.

Municipal solid waste contains concentrations of mercury resulting from disposal of mercury-containing products, including batteries, thermometers, thermostats, florescent and CFL bulbs. Current mercury pollution control technology is capable of removing between 95 percent and 98 percent of mercury from waste-to-energy facility emissions.

In contrast, total mercury discharges from landfills have not been well documented. While mercury emissions measured from landfill gas collection systems are a small fraction of WTE mercury emissions, they do not account for mercury emissions which occur from the crushing and compacting of waste during the collection process and from the working face of the landfill, and actual total landfill mercury releases to the soil, air and water over time are not well defined.

