

How does Waste to Energy work?

Waste-to-energy is a process that converts non-recyclable waste into energy, typically in the form of steam, electricity, and heat. At thermomechanical treatment facilities, the process involves several key steps:

1. **Waste Collection and Sorting** – Non-recyclable waste is collected from municipal, industrial, and commercial sources. Some facilities perform pre-sorting to remove recyclable materials, hazardous waste, and bulky items that cannot be incinerated.
2. **Feeding and Combustion** – The waste is fed into a high-temperature combustion chamber, where it is burned at temperatures typically exceeding 1,800°F (980°C). This process significantly reduces the volume of waste, leaving behind ash and gases.
3. **Energy Recovery** – The heat generated from combustion is used to produce steam, which drives a turbine connected to a generator. This mechanical energy is converted into electricity which can be supplied to the grid or used directly for industrial or district heating purposes.
4. **Emissions Control** – Advanced air pollution control systems, including scrubbers, filters, and electrostatic precipitators, remove harmful pollutants such as dioxins, heavy metals, and particulate matter before releasing the cleaned exhaust gases into the atmosphere.
5. **Residual Management** – The remaining ash is processed to recover metals for recycling, while the non-metal portion is safely recycled into components for construction materials.

Overall, WTE provides an efficient and controlled method for waste disposal while generating renewable energy. Modern facilities, like the TTFs used by Cornerstone International F&G, adhere to strict environmental regulations to minimize emissions and maximize resource recovery.

What is Waste to Energy?

Waste-to-energy (WTE), energy-from-waste (EFW), incineration and the like are all various terms for the same general technology. It involves a well-established process where waste is burned at extremely high temperatures to destroy materials and produce steam, which drives turbines to generate electricity. WTE helps reduce landfill waste and its emissions while generating a sustainable energy source that can supplement traditional fossil fuels and close the loop on circular economy business models. In the United States, the most modern sites for waste-to-energy processing are known as thermomechanical treatment facilities (TTFs). In addition to having WTE capabilities, these TTFs are also equipped with several advanced systems that filter and control emissions, extract metals for recycling, reuse water and perform several other functions that contribute to minimizing environmental impacts while maximizing value creation.