

WASTE TO ENERGY

AND HOW IT COMPARES TO ALTERNATIVES

Waste to energy systems are alternative waste management systems. There are many technologies for this (ex. incineration, pyrolysis, and gasification), although incineration is the most common. These technologies all burn waste (or fuel made from it) to recover energy.

These systems are often more sustainable than landfills, since they require less land area and can recover energy. They also have benefits over recycling in that they can run with any sort of waste material.

That being said, they also require large long-term investments that compete with recycling systems and can create environmental risks without the right safety standards, especially in developing countries.



QUICK FACTS



Once incineration reaches over **40% of waste management capacity** in developed countries, recycling rates decrease. This is because the plants use up high volumes of recyclable waste.



Incinerators can have very low running costs, with plants in China **costing as little as \$2.60 per tonne**. This is between 20 to 50x cheaper than recycling costs per tonne in the US.



The energy savings between incineration and recycling systems varies for the material in question. **For most waste, recycling can save up to 5x more energy than incineration.**



Without modern safety standards, **incineration plants can emit dioxins, sulfur dioxide, nitrogen oxide, and other pollutants.** This has been seen in developing countries like India.



Many plastic polymers, multilayered plastics, and plastic packaging are usually not recycled. Incineration can prevent this waste (and metals, organics, etc.) from being sent to landfills.



Incineration is controversial in Europe and North America. But it's growing rapidly in Asia, where **countries like China have built hundreds of incinerators in the past decade.**

NEW SOLUTIONS

WASTE TO FUEL



Although incineration is currently the main waste to energy technology, alternative processes like gasification are being developed. These turn waste into fuel before burning it, avoiding potential toxin emissions.

INFORMAL SECTOR



One of the issues with incineration plants in developing countries is that they take jobs from informal recyclers. These workers can be hired to work with plants though, helping collect waste to incinerate instead of recycle.

JOINT FACILITIES



Although incineration plants have often competed with recycling facilities, they can work together in waste management. The first priority is recycling waste, but non-recyclable material is sent to on-site incinerators.

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