

Waste-to-Energy

Frequently asked questions

Why should we burn waste – aren't waste prevention and recycling by far better?

Advanced waste management systems combine prevention, recycling and Waste-to-Energy. The EU waste hierarchy, as set out in the Waste Framework Directive, puts prevention, reuse and recycling first, followed by recovery and disposal. Waste-to-Energy plants belong to the recovery category: they turn non-reusable, non-recyclable waste into energy, thereby reducing the need for landfilling which is the least desirable option due to high environmental impacts (potential groundwater pollution, methane emissions, and aftercare periods of hundreds of years).

Isn't there a risk that incineration cannibalises the efforts for waste prevention and recycling?

Waste-to-Energy does not compete with recycling – it goes hand in hand with and supports high quality recycling as a sink for pollutants. Most countries with very high recycling rates – such as Austria, Belgium, Germany, the Netherlands and Sweden – also have high rates of Waste-to-Energy and thereby have reduced landfill to almost zero.

The combustion process cleans and separates metals from mixed waste, which otherwise could not be recycled. This makes further recycling possible: remaining metals are extracted from the bottom ash and reused for new products such as aluminium castings for the automotive industry. The remaining mineral part of bottom ash can be used as secondary raw material, replacing gravel and sand in construction.

Once paper, plastics and biodegradable waste is taken out, what is there still to be burned?

There are many everyday waste items made of mixed or dirty materials which cannot be recycled, e.g. sponges, gift and candy wrappings, toothbrushes, old shoes, vacuum cleaner bags, greasy food packaging, etc. There are also certain other wastes that should not be recycled for hygienic reasons, for example diapers and other sanitary products. In addition, there are recycling residues and materials that are degraded due to repeated recycling or ageing. Others are polluted with substances of high concern, for example heavy metals or flame retardants.

Aren't the final products left after incineration even more toxic than the original waste?

No, waste incineration just concentrates the environmentally harmful substances (lead, cadmium, mercury, etc.) which were already present in the waste in the flue gas cleaning residues. This makes further handling easier: these substances can be better managed and safely disposed of.

What about dioxin emissions?

Emissions have been significantly reduced during the past 25 years. Modern Waste-to-Energy facilities are equipped with sophisticated filters. Between 1990 and 2000 dioxin emissions of Waste-to-Energy plants in Germany dropped from 400 g to less than 0.5 g per year while the amount of thermally treated waste had more than doubled in the same period.

Why are some European cities so much better than others at dealing with their waste?

There is a wide range of factors from the availability of finance, political and social will, technical skills, to suitable planning and legal frameworks. Those who are the most successful have an integrated approach to waste management and energy at city level. This includes the development of district heating and cooling networks to take the heat from the Waste-to-Energy plants to residents' homes or to provide steam to industrial facilities.