

ENERGY FROM WASTE

A lot of waste we produce is disposed of in landfill sites. When this waste decomposes over time, a lot of CH₄ is released.

If left to accumulate in the atmosphere, this CH₄ can contribute to global warming (ref. also to Landfill).

Generally we support the waste hierarchy, which gives precedence to materials recovery and recycling, before applying gasification and incineration technology to recover energy from the burnable element of the residual waste stream as shown in the attached hierarchy diagram.

One well proven technology for waste-to-energy conversion is anaerobic digestion.

In an oxygen free environment it reduces organic waste to a relatively stable gaseous (biogas) and solid residue (digestate), similar to natural gas and compost (ref. also to Anaerobic Digestion).

Anaerobic digestion is particularly suited to wet and liquid organic materials.

Anaerobic digestion has been used for the treatment of sewage sludge for over a century in many countries worldwide.

Another technology for waste-to-energy conversion is solid gasification (applicable for non-hazardous solid waste) and plasma gasification (suitable for solid hazardous waste).

Generally the waste is separated to degradable and non-degradable components. Degradable components will be used for either biogas, syngas production or for direct combustion.

The non-degradable waste will be used for recycling, to separate plastic, glass, metals, stones and other reusable materials.

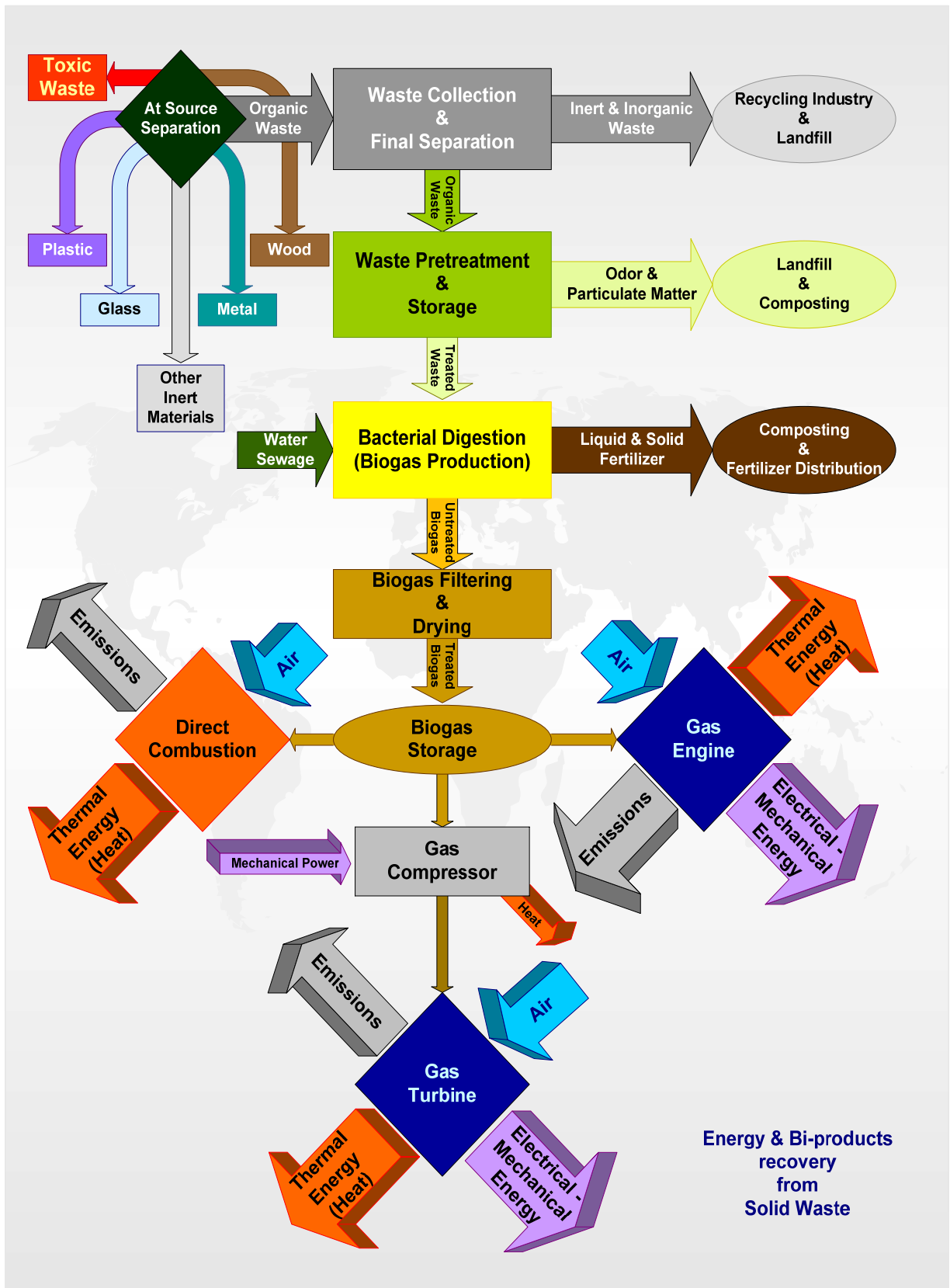
The remaining part of the collected waste will be placed at designated landfills or sent for special disposal / storage. The by-products from biogas & syngas production can be used as fertilizer or other purposes.

If no other market is available, the by-product material is sometimes sent direct to landfill as a biologically inactive waste or as daily cover.

But if it is to be used as a soil conditioner then it needs to be ensured of being free of contaminants.

Simplified diagram showing the energy from waste conversion is attached here to.

IMTE AG
Power Consulting Engineers



**Energy & Bi-products
recovery
from
Solid Waste**

MSW Hierarchy

