

## Key points:

- In a 2035 scenario where Circular Economy waste targets are successfully achieved, there will still be a significant amount of residual waste that needs safe treatment;
- Waste-to-Energy (WtE) offers secure treatment for residual municipal and commercial/industrial waste that cannot be recycled in a sustainable way.

## What is WtE?

Waste-to-Energy or waste incineration with energy recovery is the most sustainable and hygienic option to treat waste that is not suitable for recycling. Some waste material is so degraded or contaminated that reusing or recycling it does not provide the best environmental outcome according to lifecycle thinking. Treating it in WtE is the only way to prevent this waste stream from ending up in landfills.

European WtE plants treat municipal and commercial/industrial waste as well as sorting and recycling residues. This way they produce energy (electricity, heat and steam) that is delivered to households and industry thus replacing fossil fuels. From the bottom ash, that is left over after incineration, metals are recycled saving large

amounts of greenhouse gas emissions while minerals can be recovered to replace virgin raw materials, e.g. sand and gravel in constructions applications.

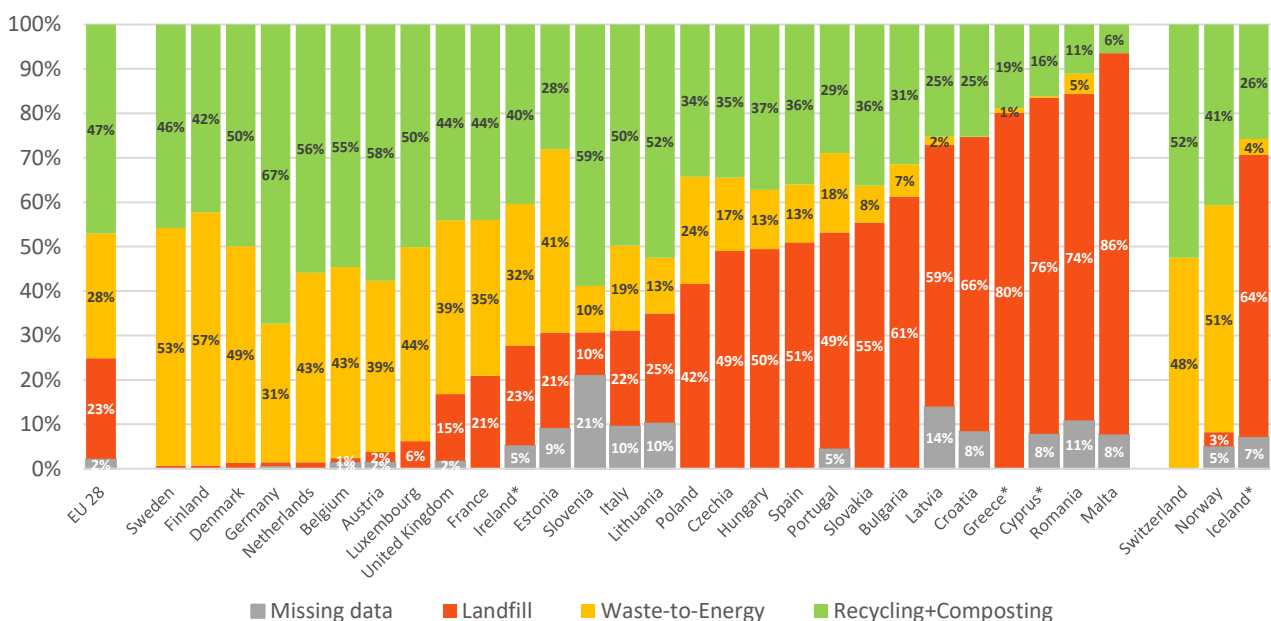
## What do we mean when we talk about residual waste treatment capacities?

In 2018, EU-28 households produced over 250 million tonnes of municipal waste of which 47% were sent to recycling and 23% (more than 57 million tonnes) were landfilled. WtE plants treated 28% of this waste stream. This corresponds to around 70 million tonnes.

Considering the whole input into WtE plants, including commercial and industrial waste, EU28 plants treated 90 million tonnes of waste in 2018 (around 13% of all waste treated in the EU, not counting the mineral and hazardous waste).

In 2018 the EU introduced new national waste management targets for municipal waste: a 10% cap for landfilling and a recycling target of 65% to be achieved by 2035. However, municipal waste is only a small part of the total waste generation. Currently no recycling or landfill diversion targets are set for commercial and industrial waste. All these streams need to be considered in any discussion on residual waste treatment capacities.

## Municipal waste treatment in EU28 in 2018 (Eurostat data, 2020)



## Does WtE create a “lock-in effect”?

When discussing WtE for residual waste treatment, the notion of “lock-in effect” often comes up,

suggesting that once a WtE plant is built, the surrounding areas are inclined to recycle less and instead bring more waste to the WtE plant. However,

## Residual Waste Treatment Capacity Fact Sheet

this theoretical assumption has not been supported by real-life evidence.

It is a matter of fact (see graph above) that countries which have WtE incineration also have the highest rates of recycling. In an integrated, well-functioning waste management system WtE supports recycling by treating the unrecyclable waste.

### Is there an overcapacity of WtE?

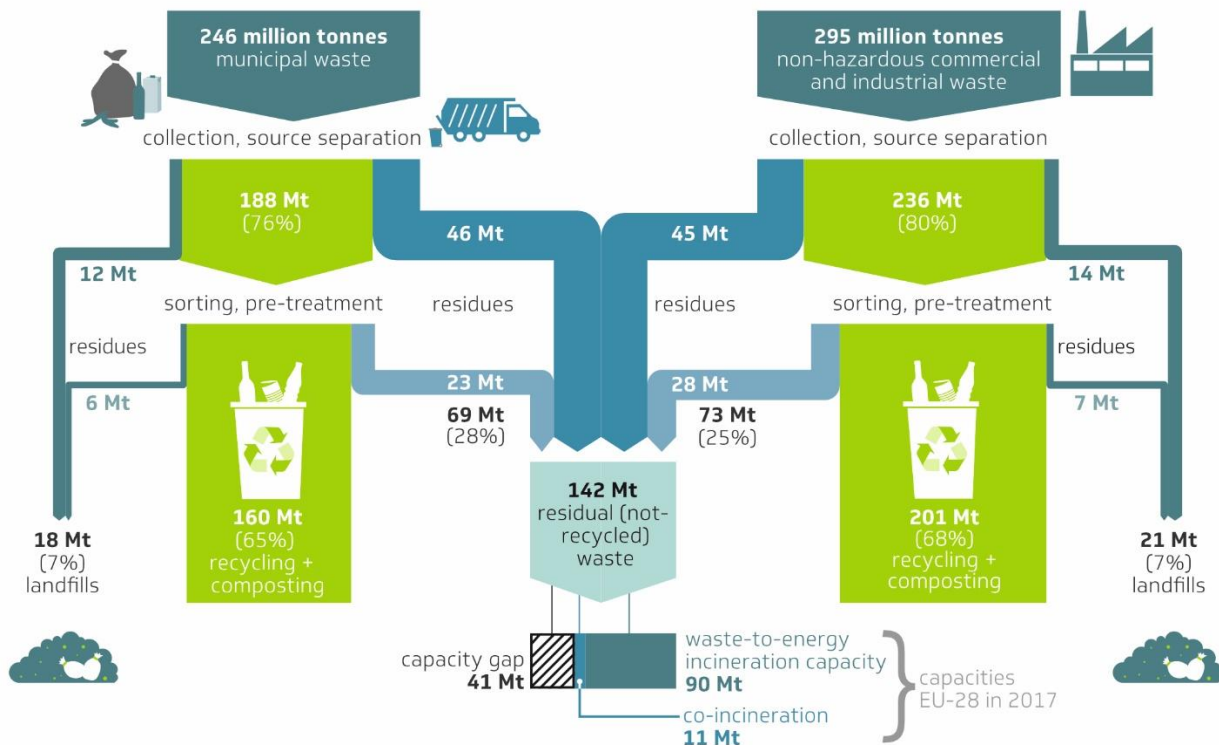
Some believe that there is an overcapacity of WtE in Europe. It is not the case and in fact, even with the ambitious municipal waste targets set for 2035 and assuming similar targets were to be reached for commercial and industrial waste (see the [peer-reviewed calculation](#) below), there will still be much more residual waste produced than can be covered

with the current WtE capacities. In order to avoid this treatment gap, 30% or 160 million tonnes of waste would need to be prevented at source.

### Differences within Europe

Nevertheless, WtE capacity in Europe is spread unevenly. 10 EU countries still landfill 50% or more of their municipal waste. They also have no or very little WtE capacity. These countries need responsible capacity planning, considering efforts of waste prevention and recycling and the need to treat rejects from recycling and sorting activities. Temporarily, they can also cooperate with countries that have more WtE capacity and have their waste treated higher up the Waste Hierarchy instead of landfilling it.

### Circular Economy Package - Ambitious Targets for 2035



Source: CEWEP 2019; Mt = million tonnes

Illustration: ahnenenkel.com

### To sum up...

Responsible capacity planning is the best way to avoid the so called "lock-in effect", because all different factors that can play a role in the amount of residual waste are considered. If properly designed, reliable capacity of a WtE plant is beneficial for the sustainability of waste

management as it allows for the necessary stability to support and improve the higher steps of the Waste Hierarchy.

The waste that is not good enough for recycling should not be wasted on landfills but instead treated in WtE plants recovering energy and materials and saving greenhouse gases.

For more information, please contact: