

# A futureproof EU Waste Framework Directive

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June 14<sup>th</sup>, 2024

MECHELEN - BELGIUM



WE MAKE  
TOMORROW  
BEAUTIFUL  
**OVAM**



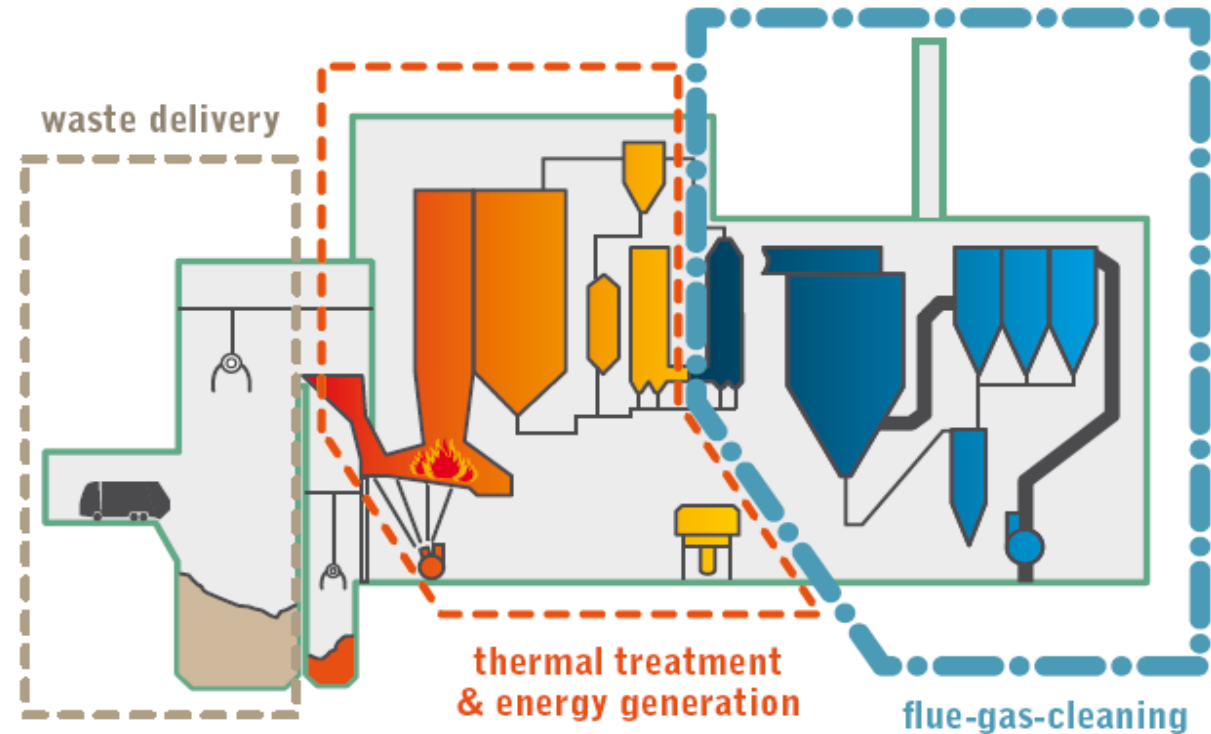
## Why don't we recycle 100%?

- Some waste streams are dirty, composed of contaminated or infectious materials
- Materials contain substances of concern (POPs, flame retardants...)
- Materials degrade after multiple times of recycling
- Mixed components

# Waste incineration as pollutant sink for unwanted substances

E-PRTR (European Pollutant Release and Transfer Register) dataset for 2019:

- **PCDDF (Dioxins) 0.15%**
- **Particulate matter (PM) 0.02%**
- **Sulphur Dioxide (SO<sub>2</sub>) 0.01%**
- **Nitrogen Oxide (NO<sub>x</sub>) 1.47%**
- **Lead 0.01%**
- **Carbon Oxide (CO) 0.004%**
- **Arsenic 0.41%**
- **Cadmium 1.13%**
- **Nickel 0.52%**
- **Polycyclic Aromatic Hydrocarbons (PAH) 0.37%**



**EU WtE Plants have sophisticated flue-gas cleaning lines that guarantee very low emissions**

- **Strict EU Regulations for waste incineration:** Industrial Emissions Directive + BREF Waste Incineration (last in 2019)
- Waste Incineration deals with the pollutants embedded in the waste (**sanitary task**)



# Waste Incineration

**Hygienic service to the society**

**Destroys unwanted substances**

**Reduces volume of waste**

**Diverts waste from landfills**

**Different outlets: energy, metals, minerals, CO<sub>2</sub>, ...**

## What about the CO<sub>2</sub> emissions?

**Reduce fossil input (mainly plastics) in WtE**

Source separation to enable quality recycling

What to do with unrecyclable plastic waste?

Who has the steering power?

Follow polluter pays principle

WtE offsets its fossil CO<sub>2</sub> emissions:

- Energy recovery replaces fossil fuels
- Metal recycling from bottom ash
  - > makes WtE climate neutral

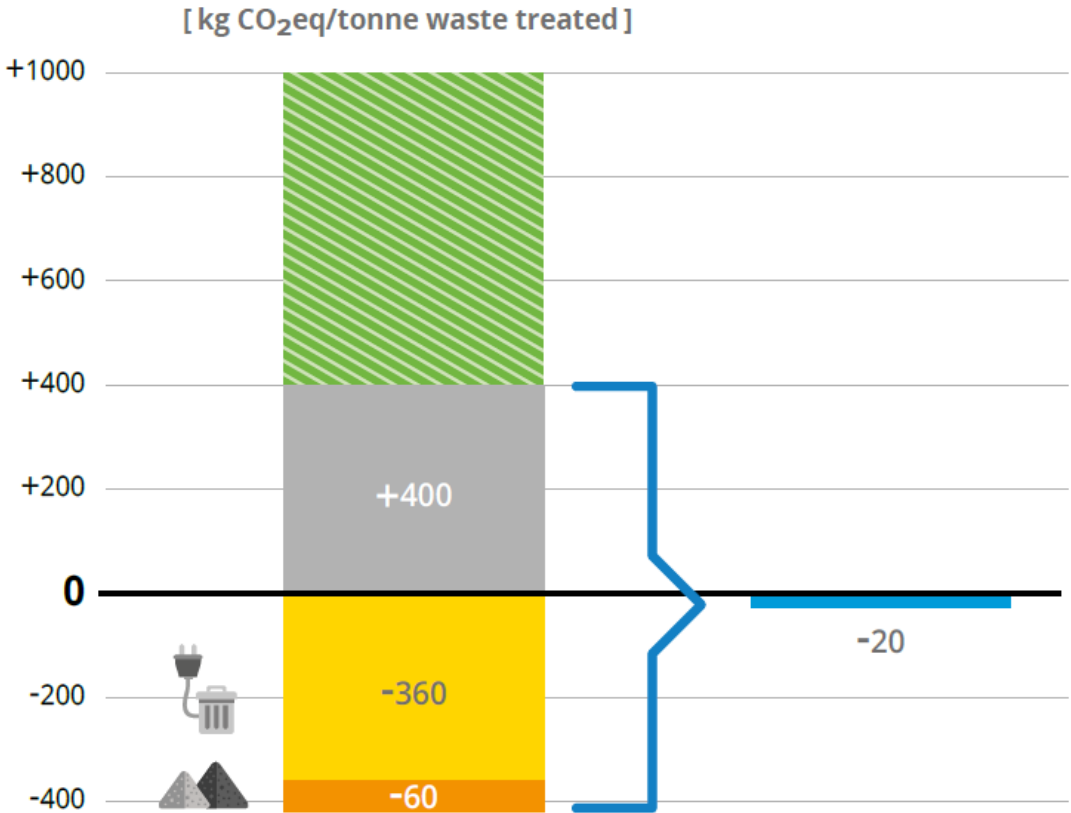
## WASTE-TO-ENERGY CLIMATE ROADMAP

The path to carbon negative

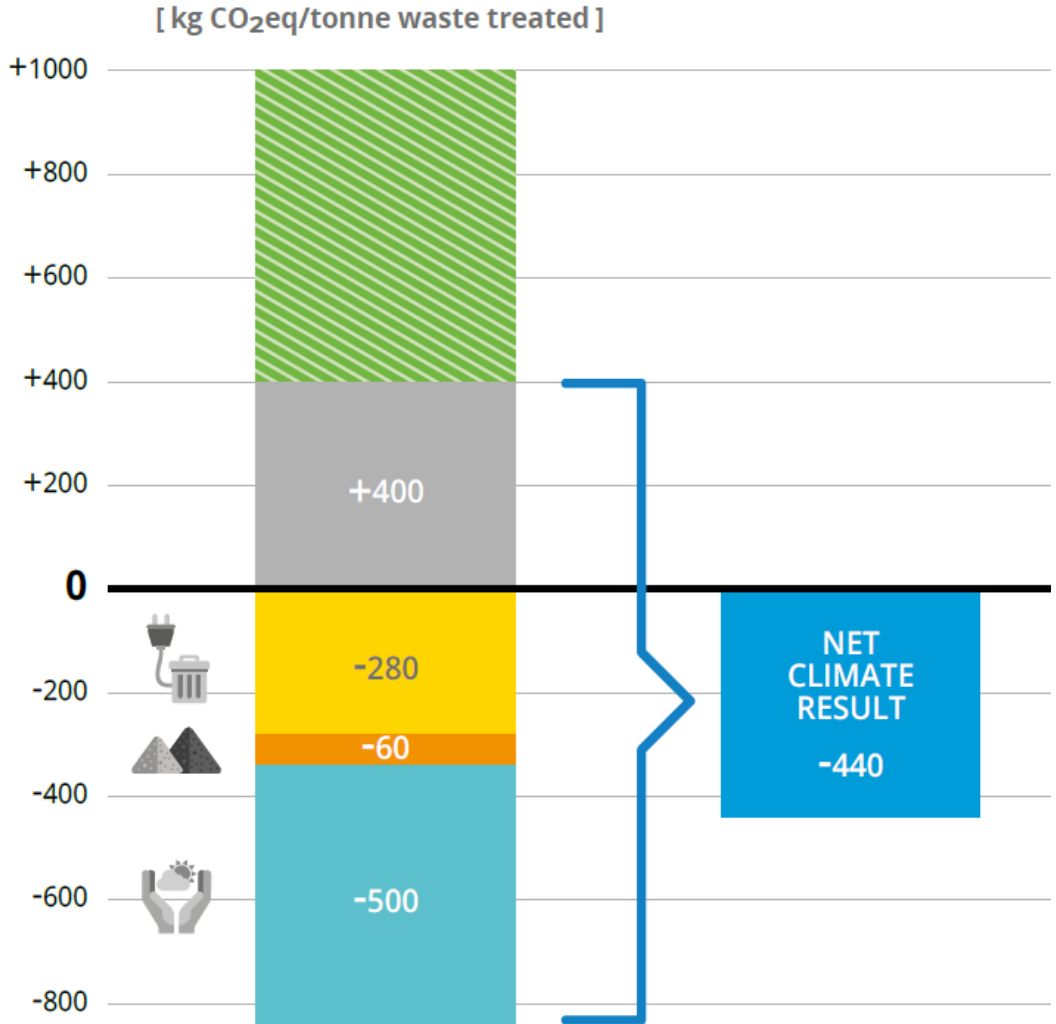


# CEWEP Climate Roadmap

## From Carbon Neutral Today



## to Carbon Negative Tomorrow



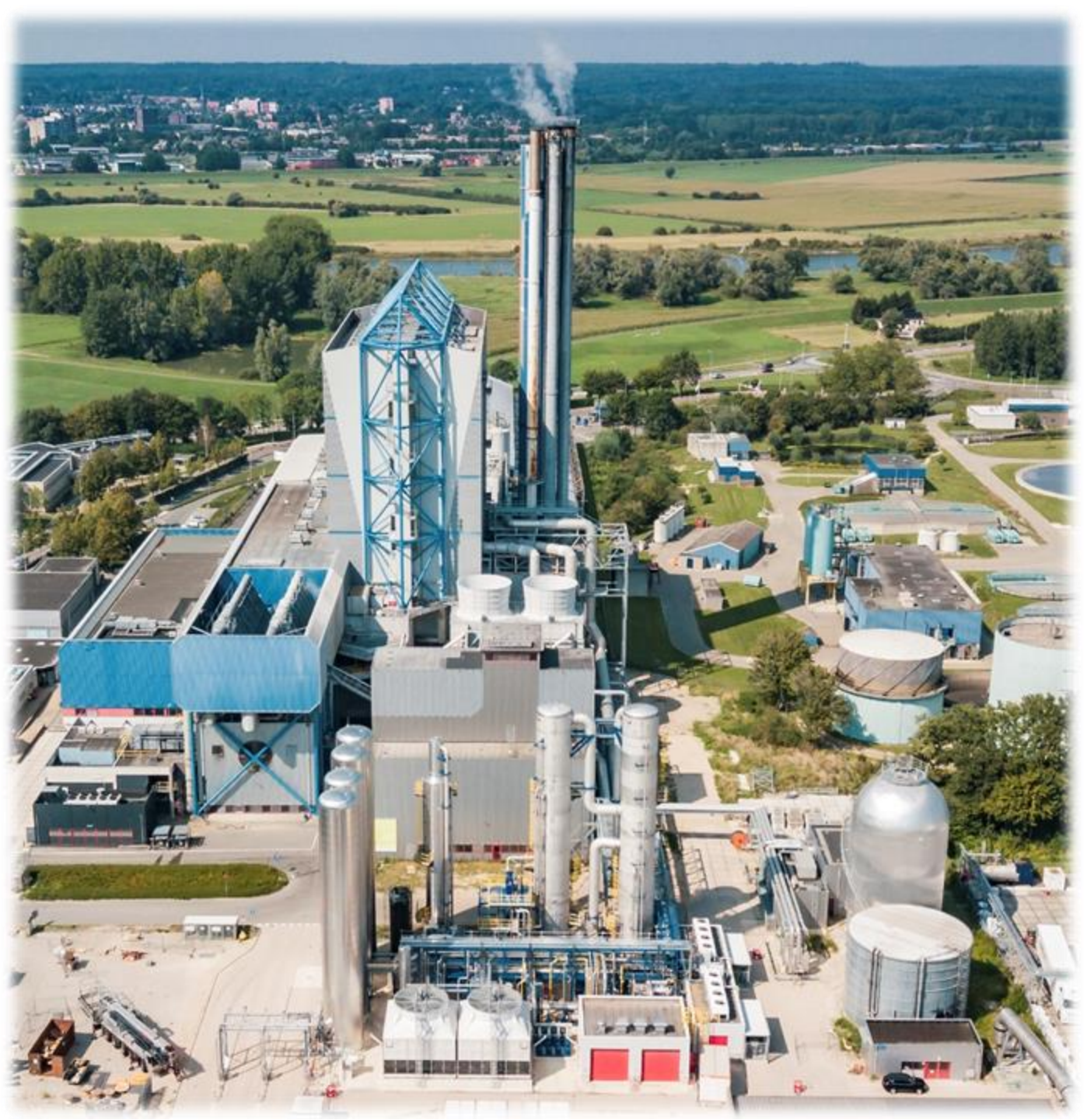
Considering also **Landfill Diversion** the climate savings would be much higher!

# CCUS: Carbon Capture Utilisation and Storage



*“The integration of WtE and carbon capture and storage (CCS) could enable waste to be a net zero or even net negative emissions energy source.”*

*UN Intergovernmental Panel on Climate Change  
IPCC Report, April 2022*



# Are there low(er) hanging fruits?

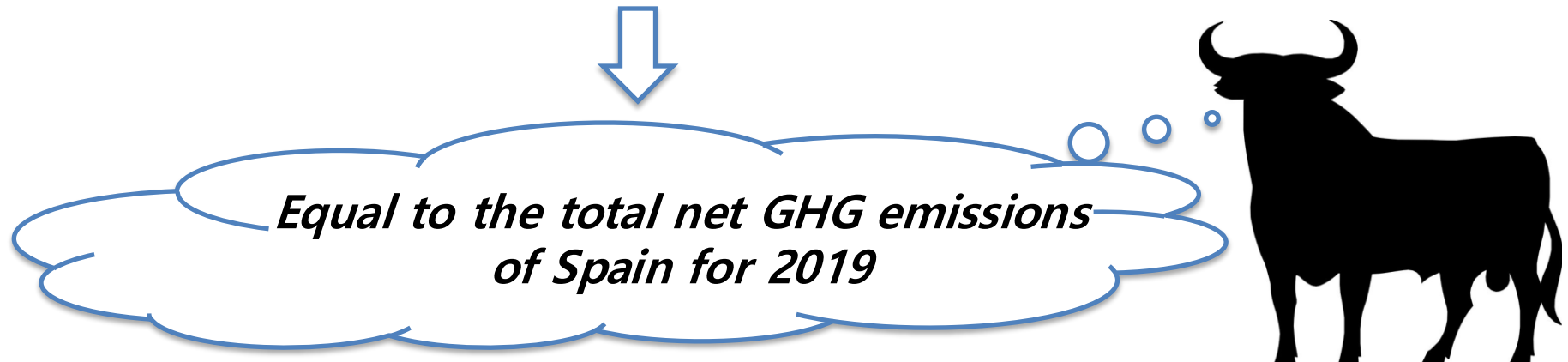
## 10 MS still landfill 50% or more ...

- [Recent study by Prognos and CE Delft](#) examined the CO<sub>2eq</sub> reduction potential of the European waste management sector for EU27+UK.
- **Saving of 150 Mt CO<sub>2eq</sub> annually:** applying current EU waste laws and the same recycling and landfill targets as set for Municipal waste to Industrial and Commercial waste by 2035.
- **Saving of 296 Mt CO<sub>2eq</sub> annually:** With more ambitious recycling targets and diverting waste that can be used for material or energy recovery from landfills.

prognos



Committed to the Environment





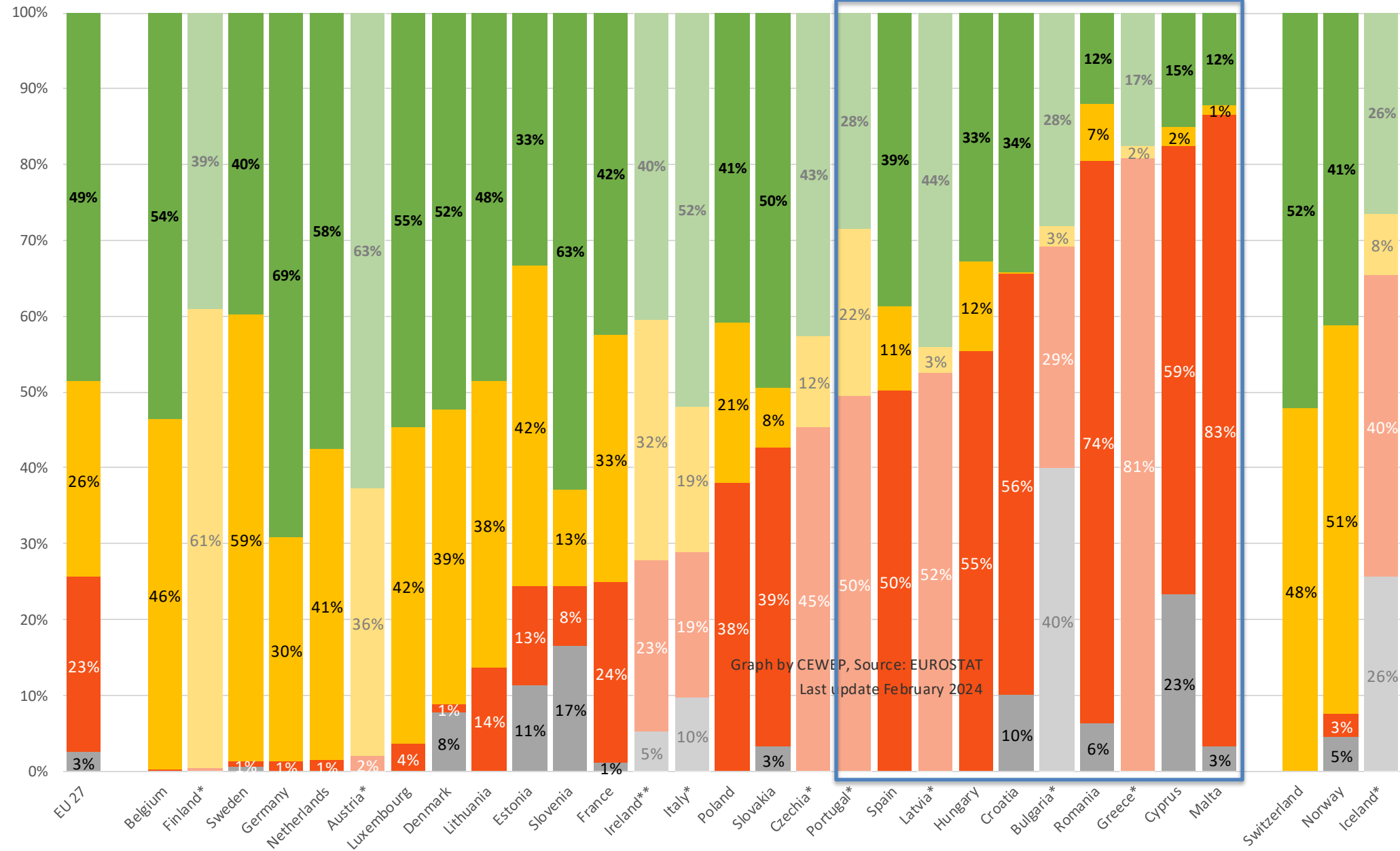
# Waste-to-Energy: Enabler of a Clean Circular Economy

- ■ Turns non-recyclable waste in an environmentally safe way into secure energy and valuable raw materials (e.g. metal recycling from bottom ash).
- ■ Keeps the circle clean by dealing with unwanted organic components in the material cycles (act as a pollutant sink, fulfilling a hygienic task for the society).
- ■ Can become carbon negative.
- ■ Supports the waste hierarchy: quality recycling and landfill reduction



Back-up

# In 2022, 10 MS landfilled more than 50% of their Municipal Waste



- Landfill
- Waste-to-Energy
- Recycling + Composting
- Missing data



Graph by CEWEP, Source: EUROSTAT  
Last update February 2024

Percentages are calculated based on the municipal waste reported as generated in the country

\*: last available data 2021  
\*\*: last available data 2020