Waste-to-Energy and the revision of the Waste Framework Directive

Waste-to-Energy's contribution to climate protection

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Content

1. What is the proposal to classify WtE as recovery?
2. What improvements would this proposal promote?
3. What is the potential reduction of greenhouse gases WtE can offer?
4. Conclusions

Proposal: WtE as recovery

It is proposed to consider WtE as recovery if:

- **Municipal Solid Waste is treated by a thermal process in an installation, recovering the energy within the waste,**
- **replacing fossil fuels which would otherwise have been used by conventional power plants**
- **and achieving high energy efficiency according to a formula based on 'best available techniques'.**

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Proposal Commission and Council

Treatment of waste in a WtE plant is **recovery** if:

An existing plant has efficiency factor > 0,6
A new plant (from 2009) has efficiency factor > 0,65

Energy efficiency:

$$\frac{\textbf{Energy produced – (Energy in added fuel + Energy import)}}{\textbf{0,97* x (Energy in the waste + Energy in added fuel)}}$$

Correction factor electricity production: energy efficiency x 2,6
Correction factor heat for commercial use: energy efficiency x 1,1

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* factor accounting for energy losses due to bottom ash and radiation

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Improvements promoted

1. **Trigger improvement in energy efficiency of existing less efficient WtE plants.**

Impact: more energy produced from waste

➔ **Less greenhouse gas emission**

2. **Facilitate building new efficient WtE plants to treat waste that is currently landfilled**

Impact: less methane emissions from landfilling + more energy produced from waste

➔ **Less greenhouse gas emission**

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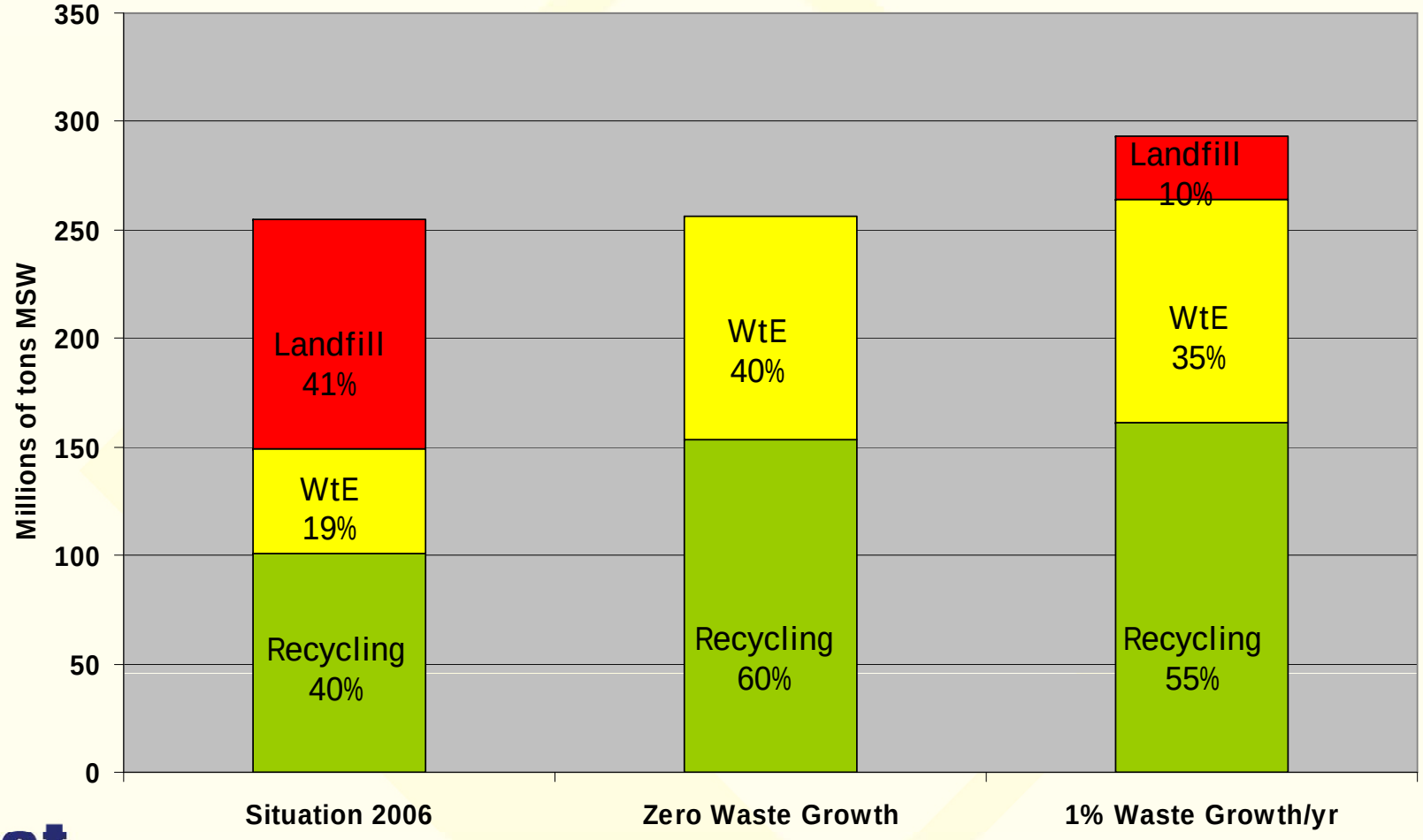
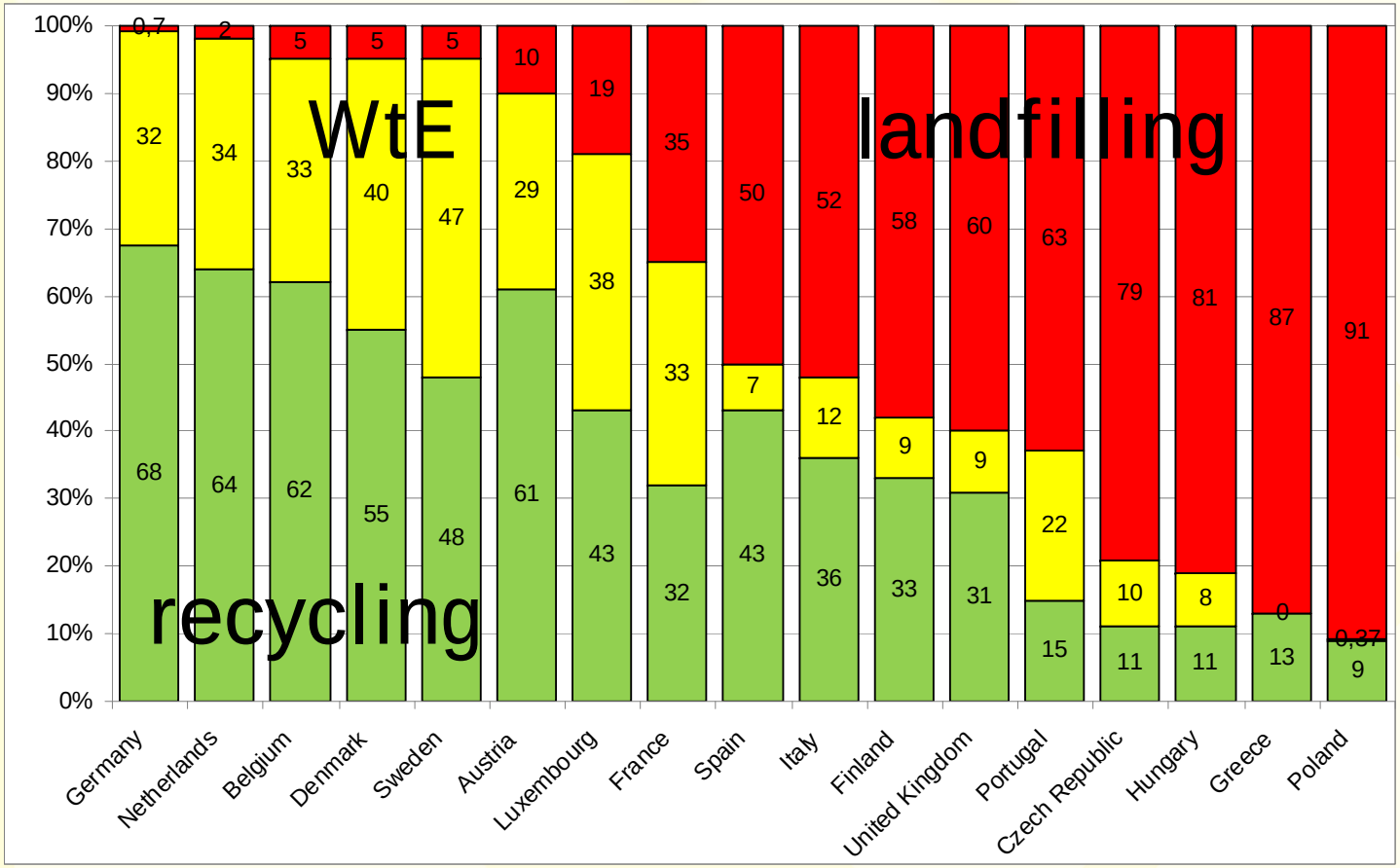
Scenarios for 2020

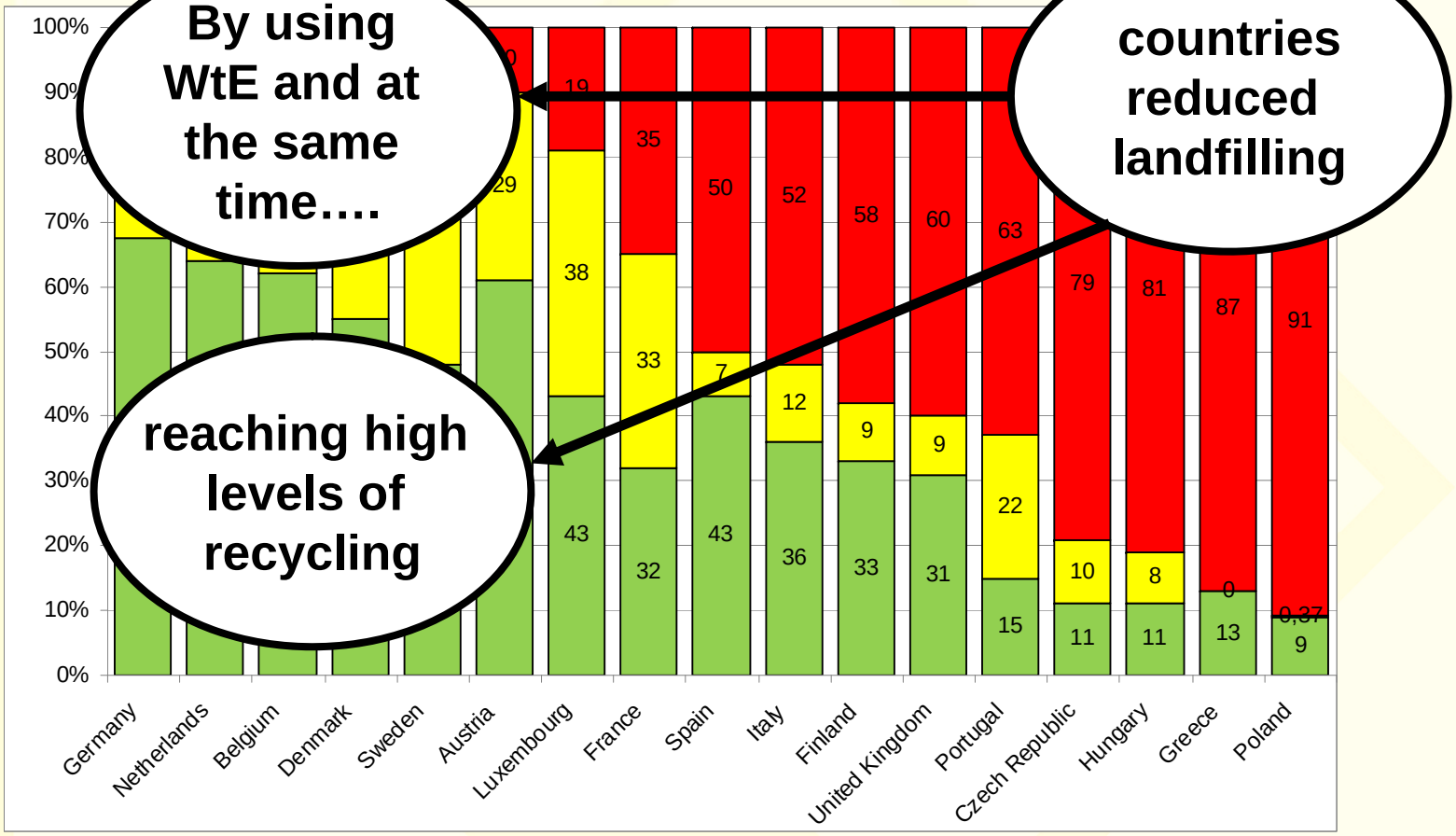


EU 27 –
517kg MSW/ person

MSW management EU27 in 2006



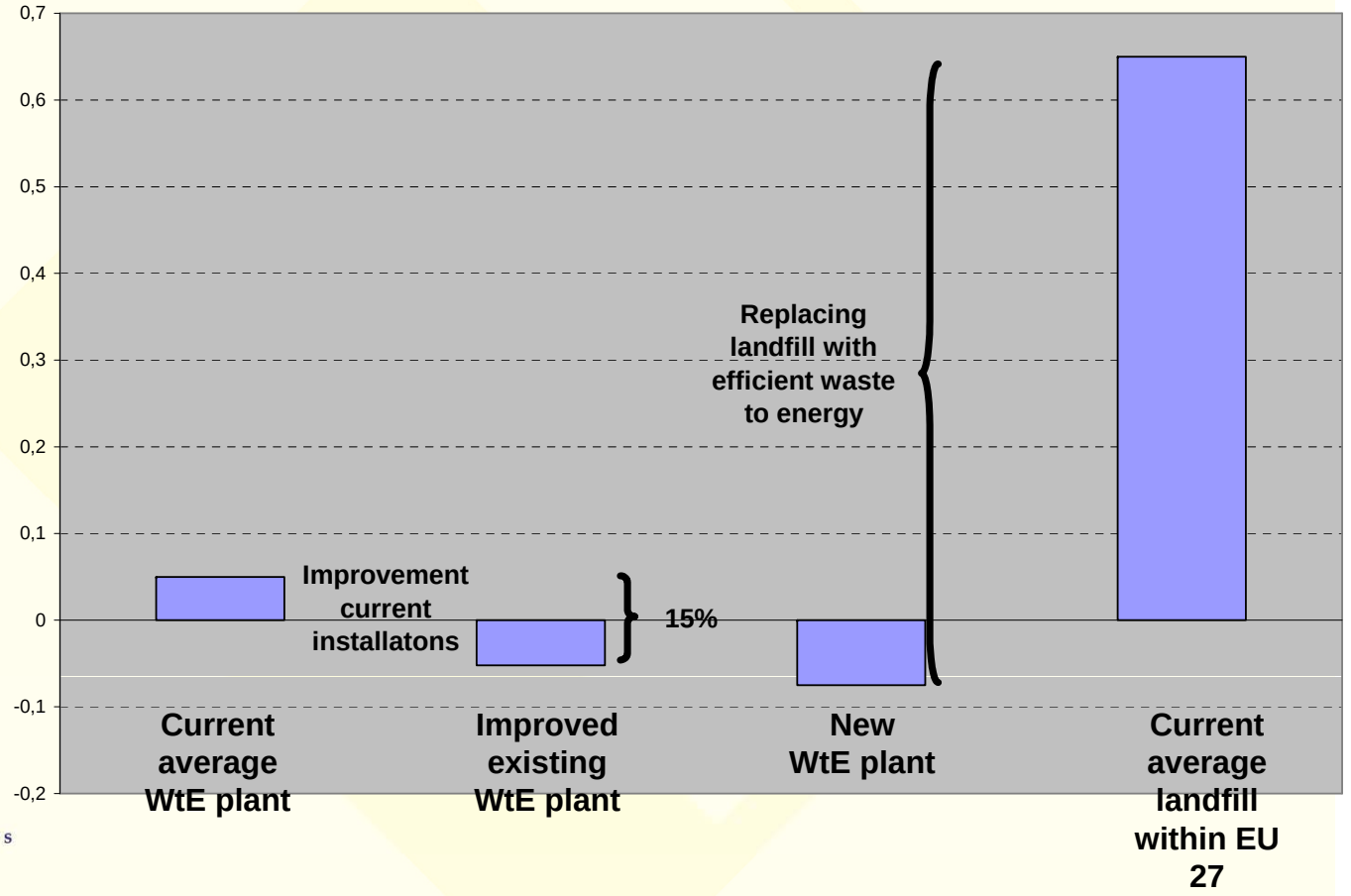
Success stories in reducing landfill



Source separation and recycling

Constituent of MSW	2020
Composting or digestion of biodegradable waste	45 -50%
Recycling paper and cardboard	70 -75%
Recycling glass	70-80%
Recycling plastics	30-35%
Recycling metal	90%
Recycling textile	50%
Recycling other fractions	25-30%
Total	55-60%

Reduction potential of emission of GHG in tonnes of CO_2 eq per tonne of waste managed



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Potential CO_2 reduction EU27

Installation	Million tonnes $CO_{2\ eq}$ avoided (both scenarios)	Equivalent annual emissions from cars
Improving of existing WtE plants (treating 56,7 million tonnes MSW)	5,8 million tonnes	3 million cars
New WtE plants (treating 54,8 million tonnes MSW additionally)	39,4 million tonnes	19 million cars
Total	45 million tonnes	22 million cars

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Potential in some Member States

Member State	New WtE plants (million tonnes of MSW capacity added)	Avoided CO_2 emissions (million tonnes)
France	2,5	1,7
Italy	9,2	6,6
Poland	3,9	2,8
Spain	8,7	5,8
UK	11,0	5,2

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Energy produced through WtE

If the scenarios would become a reality WtE plants could produce by 2020:

- Electricity to cover the needs of **19,4 million** European households
- Heat to cover the needs of **25,4 million** European households
  - Cooling may become more prominent in Southern Europe in the future and WtE is capable of providing the energy for this

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Conclusions

- **WtE: is an alternative energy source helping to achieve the EU Energy/Climate targets for 2020**
- **WtE has a significant potential to contribute to CO_2 reduction**
- **The shift that is needed from landfilling to recycling and WtE will require building new efficient WtE plants.**
- **The recovery status for WtE will facilitate this.**
- **The aim to become recovery installations will stimulate existing plants to improve their energy efficiency.**

Recommendations

- **Decision makers on the European level can contribute to climate protection by granting the recovery status to WtE installations based on energy efficiency performance.**

- **Member States should support the development of more highly efficient WtE capacity alongside ambitious measures for prevention and recycling.**