

Bio-Waste - Need for EU-Legislation?

Brussels, 9 - 10 June 2009

Dr. Ella Stengler


Confederation of European Waste-to-Energy Plants 


   

Bio-Waste The Need for EU-Legislation?

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CEWEP
Confederation of European Waste-to-Energy Plants 



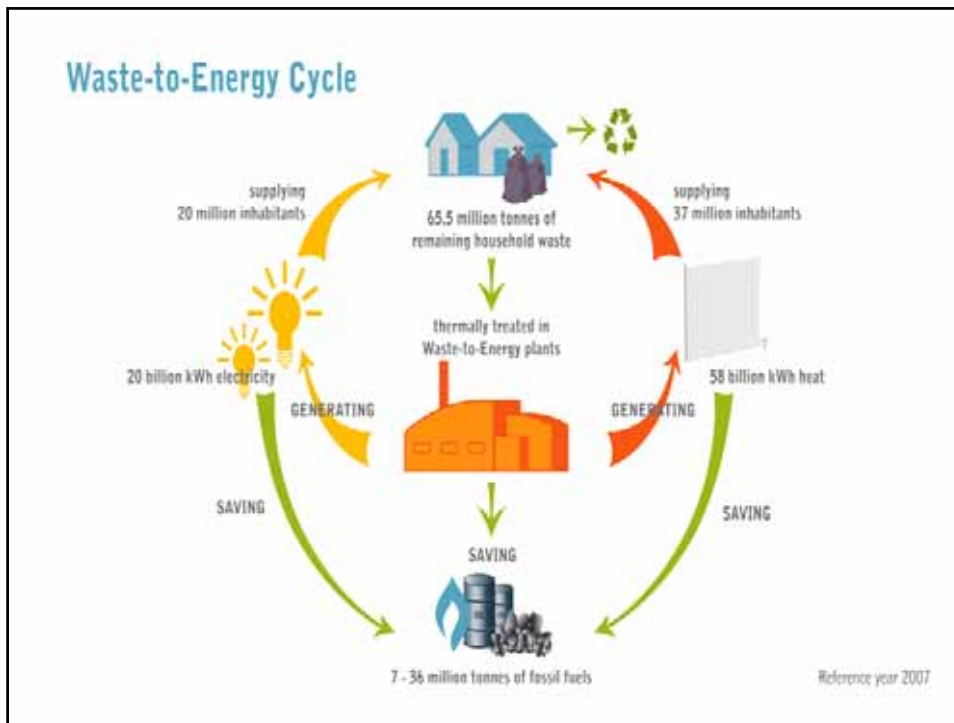
CEWEP represents about 380 Waste-to-Energy plants across Europe, 88% of the European market.

They thermally treat 54 million tonnes of household and similar waste, that **remains** after waste prevention, reuse and recycling by generating energy from it.

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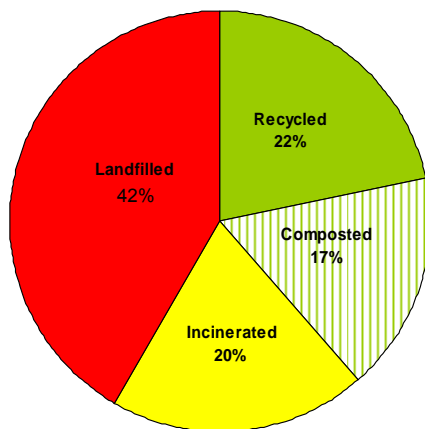


What is EU 27 doing with MSW?

Source: EUROSTAT 2007



EU 27



Despite landfill gas (methane) being 25 times more significant to global warming than CO₂ landfilling (42%) is still the main waste treatment option in Europe.

WtE: Instrumental in EU Waste Policy



According to the Landfill Directive (1999/31/EC) biodegradable municipal waste going to landfills must be reduced: to 35 % of the total amount (base year 1995) by 2016.



reducing greenhouse gas emissions by around 74 million tonnes CO₂-equivalents

A further shift of untreated waste away from landfill would save more than 100 million tonnes CO₂-equivalents in EU-15

... and much more in EU 27

Recycling together with WtE help to fulfill the Landfill Directive

The old prejudice



Would WtE hamper recycling?
... or can they join forces?



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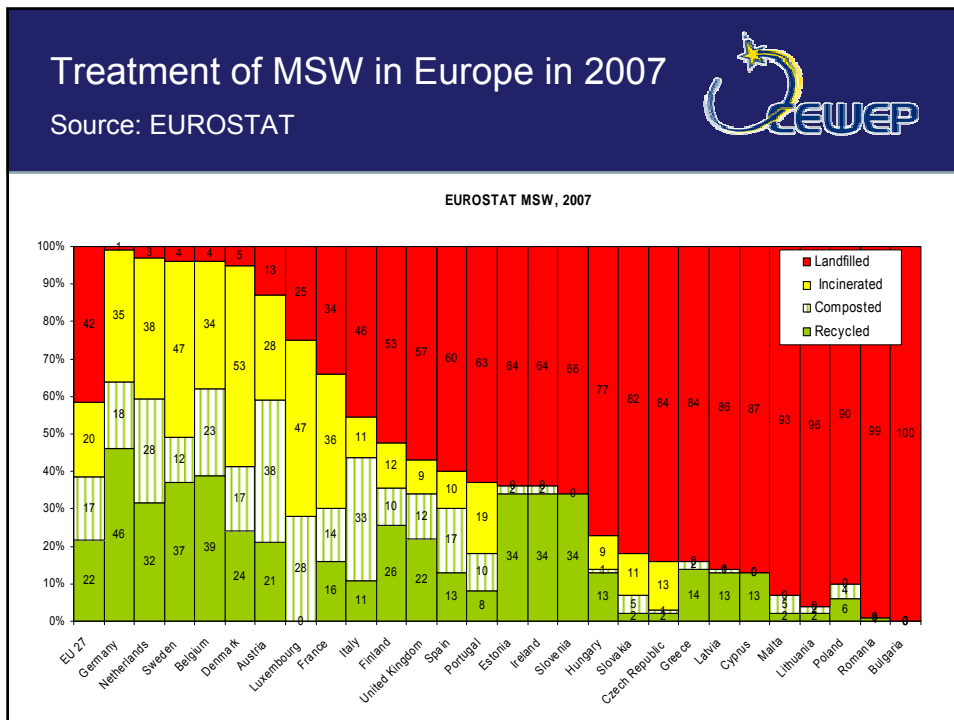
WtE hand in hand with Recycling

The Member States who have most successfully reduced dependence on landfill have done this by combining:

- **material recycling**
- **biological treatment** (composting and anaerobic digestion)
- **and Waste-to-Energy**



Proving that WtE goes hand in hand with Recycling.



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The **European Environment Agency** says:



“Recycling of municipal waste and incineration with energy recovery are used as complementary tools to divert waste from landfills and to recover some economic value from the Waste.”

http://reports.eea.europa.eu/state_of_environment_report_2007_1/en/

Climate Protection



As the RES (Renewable Energy Sources) Directive considers the **biodegradable fraction of industrial and municipal waste** as biomass

→ renewable energy source

WtE can help to fulfil the ambitious aims on

▶ **20% share of renewables in overall EU energy consumption**

Climate protection



Today 8.5% of energy is renewable.

To achieve a 20% share by 2020 will require major efforts across all sectors of the economy and by all Member States.

WtE's contribution to renewable energy generation



67.9% of the EU 27's renewable energy sources comes from biomass and waste, 12% of which is from municipal waste *

WtE already supplies a considerable amount of **renewable energy**

> 35 billion Kilowatt-hours (35 Terawatt-hours) reference year: 2006 -> 3.3 % of the total renewable energy

= ca. 50% of the total energy generated by WtE Plants as we assume 50% biodegradable part in MSW

* European Environment Agency, "Maximising the environmental benefits of Europe's bioenergy potential", Technical report 2008 http://reports.eea.europa.eu/technical_report_2008_10/en

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WtE's contribution to renewable energy generation



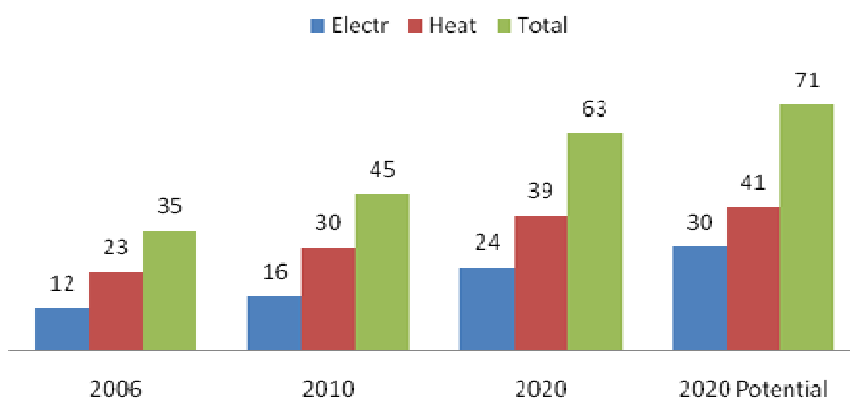
The estimation that ca. 50% of MSW is biodegradable comes from countries/regions, which have introduced source separation and efficient recycling systems, such as

- Flanders (continuous measurement of biomass content in the *remaining* MSW)
- Germany (Öko-Institut Study estimates 62%)
- The Netherlands (calculation based on compositional information, each year; in 2008: 48%)

WtE Renewable Energy development



Growth of Renewable Energy from WtE for the EU 27 in TWh
(1 TWh = 1000 million kWh)



Growth due to ...



- Improved energy efficiency of WtE plants according to Waste Framework Directive (WFD)
- Diversion of waste from landfilling

Share of renewable Energy from WtE as a % of total renewable energy for selected countries



Assumption is that countries do achieve their binding target for renewable energy by 2020.

Country	2006	2020
NL	14,3	4,4
BE	13,3	2,5
DK	12,5	6,3
DE	7,5	3,0
CZ	3,9	3,3
SE	3,7	4,7
UK	3,6	1,8

Decline of % contributed by WtE is because total renewable energy per country must grow much faster in order to meet the target.

Summary



CEWEP respects the waste hierarchy,
i.e. recycling, incl. high quality composting,
before WtE,

if recycling takes place in an environmentally sound way
(pollution is decisive)
and is economically feasible.

Summary



It is not WtE

versus

Recycling, incl. Composting and
Anaerobic Digestion

They are all complementary means for sustainable waste
management.



Summary



However, the **remaining** waste, which cannot be recycled in a viable way should be turned into energy.

Thus contributing to

- Security of energy supply
- Reducing Europe's dependence on fossil fuels
- Avoiding green house gas emissions
 - From fossil fuels which would be used to produce this energy and
 - From landfills



Need for

Diversion from landfilling



Main aim of sustainable (bio) waste management is to minimize landfilling.

MS which introduced landfill bans (or other means) on biodegradable or combustible waste managed well in diverting waste from landfills.

Quality criteria



Quality criteria for compost are necessary

Art. 22 WFD also demands with regard to bio-waste:
“guarantee a high level of protection for human health and the environment”

Polluted waste should not be spread on soil, but turned into energy

If the quality of bio-waste to produce fertiliser cannot be guaranteed, WtE is a good alternative.

Synergies



In order to reduce climate relevant emissions, such as Methane (CH_4) and laughing gas (nitrous oxide N_2O) from plants for biological treatment

and to improve energy efficiency

Research is on its way to optimize eco-efficiency of digestion plants through integration in WtE plants

Possible synergies: logistics/transport, infrastructure for energy supply, educated staff, use of waste water from bio-waste digestion for flue gas cleaning of WtE plant; common recovery of metallic and mineral residues; last but not least production of fertilizer or fuels from digestates through drying with waste heat from WtE plants.

Considering existing capacities and local needs



Many MS developed good local infrastructure for WtE delivering sustainable energy in the form of electricity and heat, and (more and more) cooling.

Systems/capacities which have been already installed and work properly in the MS have to be taken into account.

The need to use fertiliser, e.g. on farmland, and to improve soil quality varies between the MS, depending on geology, soil type and soil use.

Therefore local needs and circumstances determine the choice between returning high quality bio-waste to agricultural or other land or using bio-waste to produce energy, e.g. through incineration

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Source separation



CEWEP supports source separation of waste.

Successful for glass, paper, metals.

Separate collection of bio-waste, particularly as a means of quality assurance, where appropriate

easier in rural areas, whereas in cities the quality is often poorer
odour and hygienic issues (particularly in hot areas)

Biodegradable waste from households are often polluted

Methods of separate collection must be adapted to local circumstances.

No "one size fits all"

For more information on Waste-to-Energy:



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