

European legislation on W-t-E – Best Available Techniques



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Waste to Energy, transforming strategy into reality

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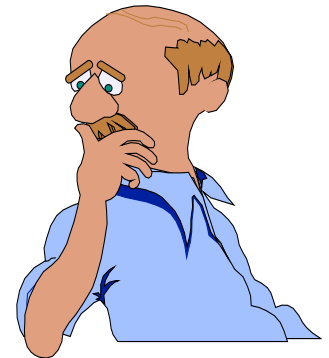
Waste = Nuisance & Resource



Waste = Problem + Solution

WASTE = NUISANCES + RESOURCES

- NUISANCES
 - Land use
 - Visual, olfactory inconvenience
 - Health hazard
 - Environmental hazard
 - ...
- RESOURCES
 - Energy
 - Material



Waste management: Essential service

Waste management is firstly

a **SERVICE**

to solve a problem of
society

a **DE-POLLUTION**

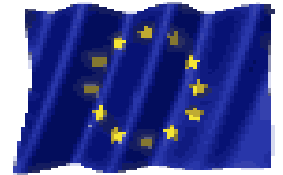
activity

“Solid waste management is the one thing just about every city government provides for its residents. (...) solid waste management is arguably the most important municipal service and serves as a prerequisite for other municipal action.”



World Bank, “What a waste...”, 1/3/2012, p. vii

Legislation addressing W-t-E



3 main pieces

1 - 'Waste Framework' Directive (WFD)

now under review in the 'Circular economy package'
with Landfill directive and Packaging directive

2 - Industrial Emissions Directive (IED)

Defines **Best Available Techniques (BATs)**
and BAT-Associated Emission Levels (BATAELs)

3 - EU's Climate and Energy Package

now under review in the '**Energy union package**'
with Landfill directive and Packaging directive



1 - 'Waste Framework' Directive (WFD) and proposal for a 'Circular economy package'

Sorting and W-t-E Nantes West, France

Waste Framework Directive : KEY Aspects - 1

- Actual name : “Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives”.
- Transposition into National legislation by MSs by 12th of December 2010

■ KEY CONCEPTS of EU waste legislation

- What is a waste, what is recovery, waste hierarchy and so on
- Basic environmental safety net
- All waste management operations should not harm the environment

■ Waste management PLANS

- Required from all Member States (MSs) with full geographical coverage
- Linked to infrastructure funding

■ PERMITS, Registration

- PERMIT to OPERATE for ALL waste management INSTALLATIONS
- Collectors, transporters, brokers must be REGISTERED

Key aspects - 2



■ KEY PRINCIPLES

■ Self-sufficiency principle

- Each Member State should have enough installations for the disposal of its waste

■ Proximity principle

- Waste for disposal should be dealt with as close as possible to its generation

■ 'Polluter pays'

- Producer of the waste should pay for its disposal costs

■ Producer responsibility

- Producer of product responsible for waste generated

■ HAZARDOUS waste

■ Special requirements for hazardous waste

■ The 15 properties of waste which render it hazardous (H1 to H15)

- Explosive, Flammable, Irritant, Harmful, Toxic, Corrosive, Carcinogenic, Infectious, Mutagenic, Sensitizing, Ecotoxic



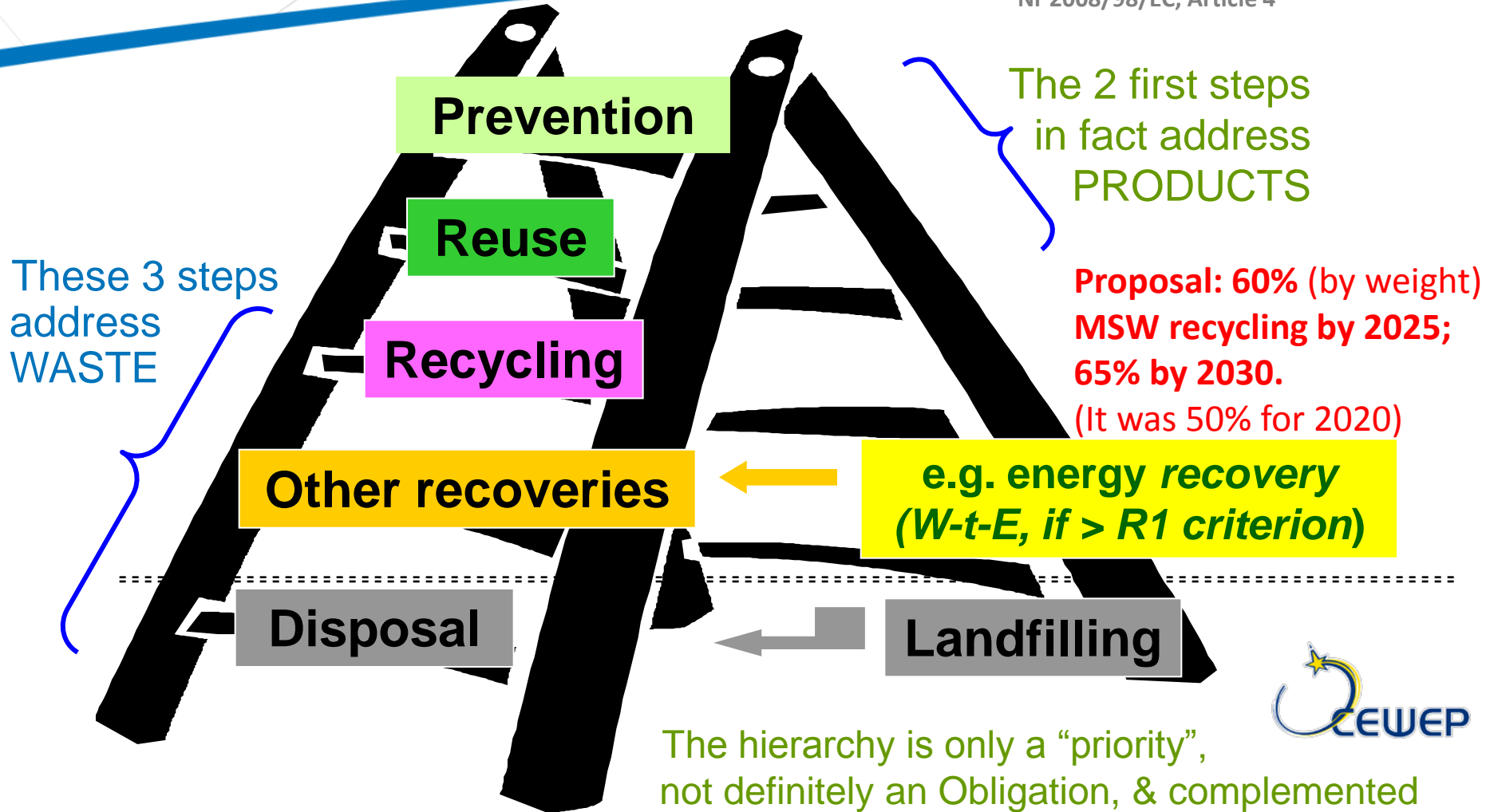
Waste treatment hierarchy



W-t-E, Châlons en Champagne, France

The Waste treatment HIERARCHY

WFD (Waste Framework Directive)
Nr 2008/98/EC, Article 4

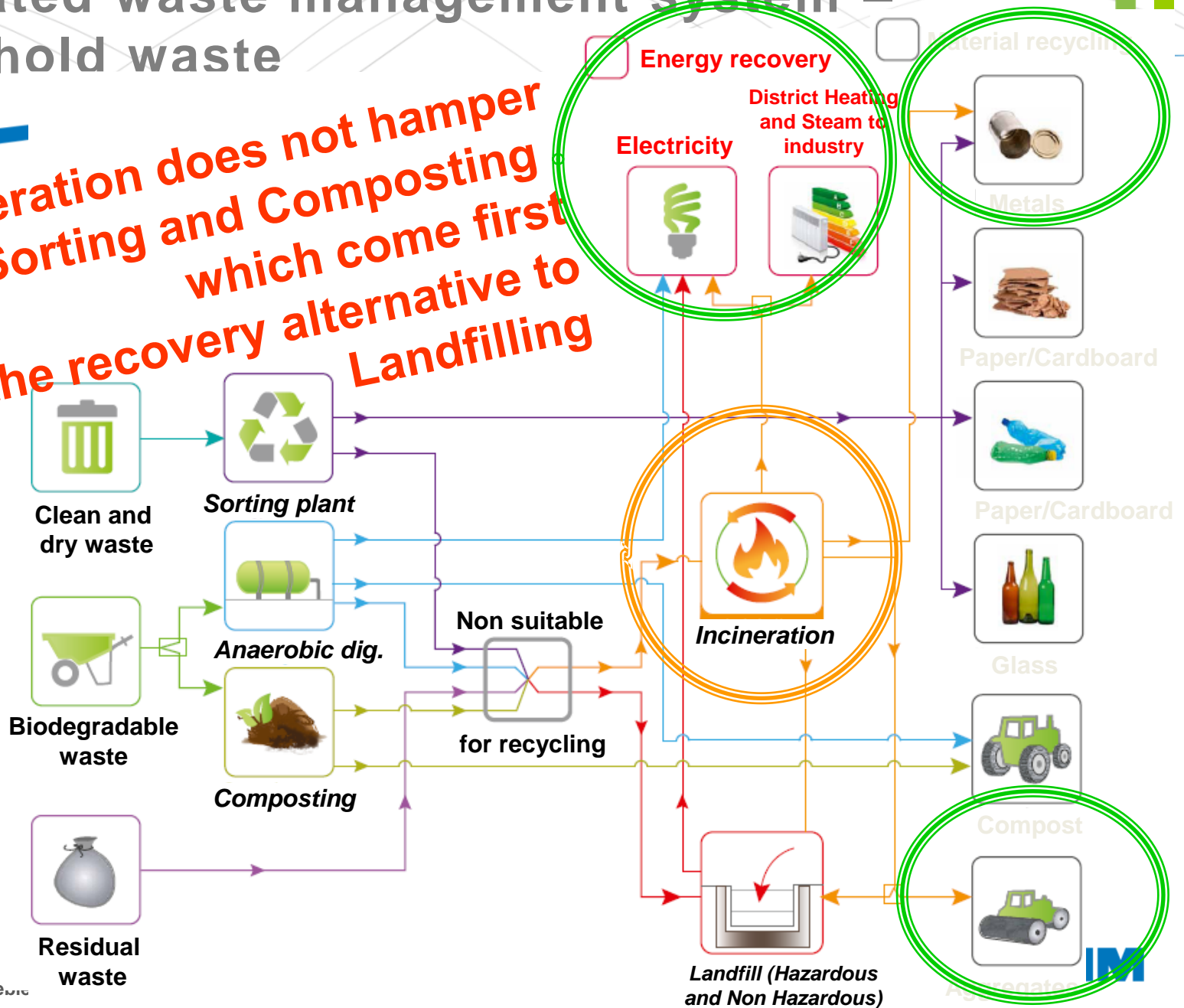


The hierarchy is only a “priority”, not definitely an Obligation, & complemented by life cycle & environmental impact thinking



Integrated waste management system – Household waste

**Incineration does not hamper
Sorting and Composting
which come first
It is the recovery alternative to
Landfilling**

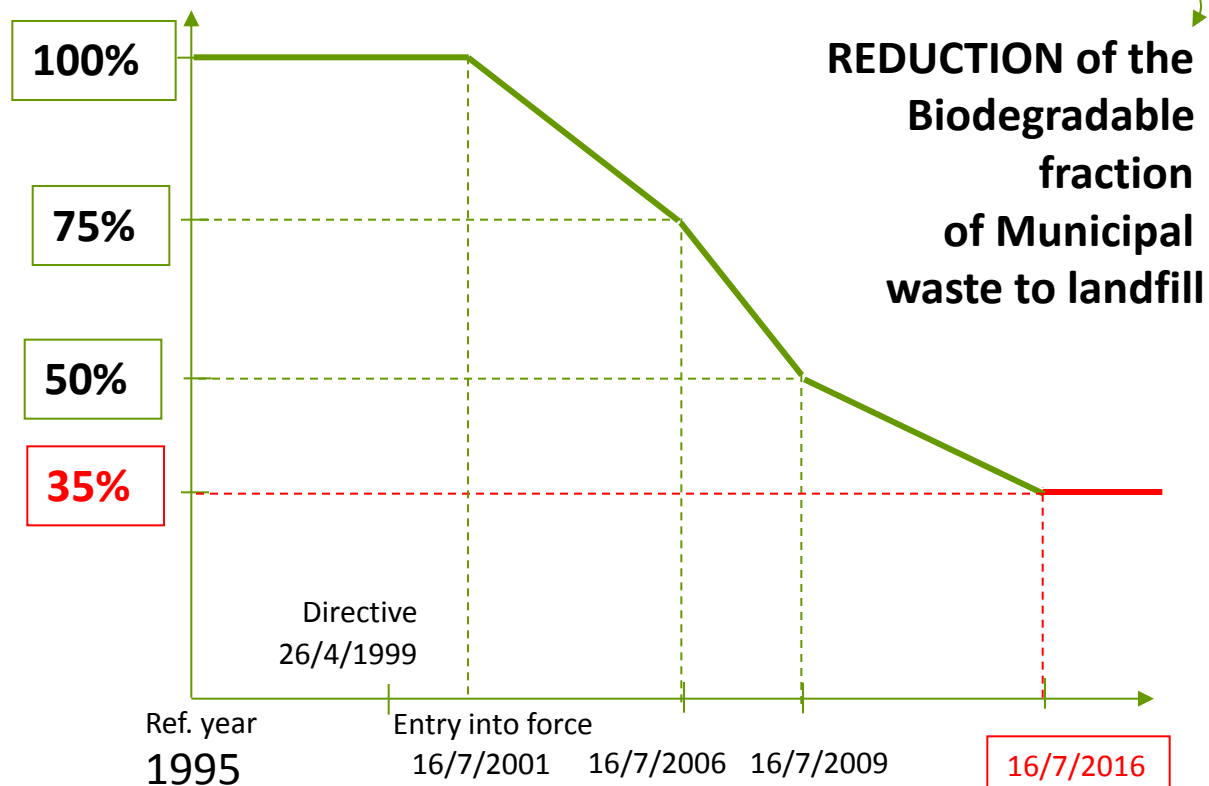


Landfill directive : Landfilling restriction

**Circular economy package proposal 2016:
Maximum 10% landfilling of MSW by 2030**

- E.U. Directive on the landfill of waste
 - Council Directive 1999/31/EC of 26 April 1999

- Germany:
Landfill ban
for untreated
waste
2/6/2005



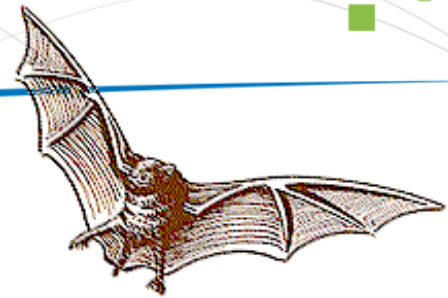
2 - Industrial Emissions Directive (IED):

- Best Available Techniques (BATs)
 - BAT-Associated Emission Levels (BATAELs)
- W-t-E BAT Reference doc (BREF)
currently under review



Marchwood, UK

Best Available Techniques (BATs)



Best Available Techniques (BATs)

- Defined by integrated approach
 - Emissions and impacts to Air, Liquid effluents, Solid
 - Natural resources conservation: Energy, reagents, water, Material recovery, Residue production)
 - Risks from Hazardous substances, accident
 - Technical viability:: proven robust, high flexibility and availability
 - Economical : investment cost Op. & Maintenance cost, revenues
- **BAT-Associated Emission Levels (BAT-AELs)**
 - Best performances available with BATs
 - **All permits to set compulsory Emission Limit Values (ELVs) not exceeding BATAELs**
 - **Even if better than needed for Environment and Health protection**
 - Similar system for other performances such as efficiency (BAT-AEPLs, BAT Associated Environmental Performance)
 - **W-t-E: by far the lowest emissions of all industries**

3 – ‘Climate and Energy Package’ And proposal for an ‘Energy union’ package: Roadmap on Renewable Energy (with Communication on W-t-E), Climate actions, Energy efficiency, Heating & Cooling



Bourgoin Jaliou

EU's 'Climate and Energy Package'

- 4 directives which became law in June 2009 : Emissions Trading System (ETS), 'Effort Sharing Decision', Renewable energy, Carbon capture and storage (CCS).

■ The "20-20-20" target by 2020

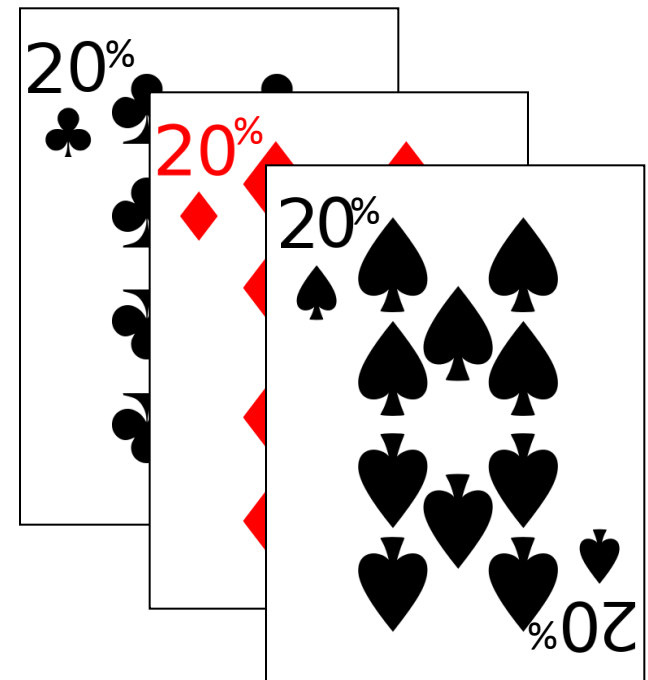
- 20% share for renewable in EU energy mix
- 20% improvement in energy efficiency
- 20% reduction in GreenHouse Gas emissions

• These are ambitious targets :

Only 8.5% energy from renewable sources (2009)

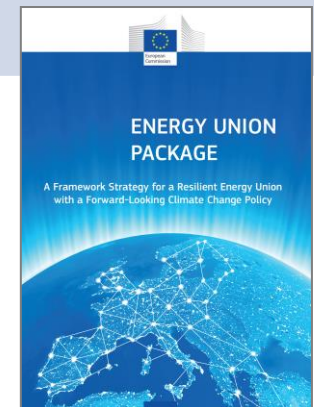
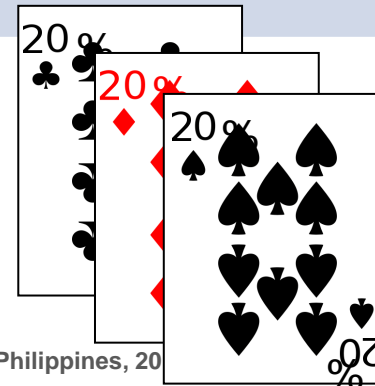
W-t-E significant contribution

- 50% of W-t-E energy = Renewable (Biodegradable fraction of waste is renewable according to RES directive 2009/28/EC of 23/4/2009)
- No methane emissions (No Landfilling)
The GWP (Global Warming Potential) of CH₄ is 25 the one of CO₂ (in weight)
- Fossil fuel saved (and corresponding emissions of fossil Carbon)



'Energy union package' proposal vs. 'Climate and Energy package'

Targets	2008 package	1 st draft
	By 2020	By 2030
Reduction of greenhouse gases	20% (taking 1990 as reference)	40% (ref. still 1990)
Renewable energy in the total energy consumption in the EU	20%	27%
Saving on EU energy consumption by increasing energy efficiency	20%	27% (compared to business as usual scenario)
Biofuels in the total consumption of vehicles	10%	



Energy Union Package

- **W-t-E communication**

- **Pros**

- W-t-E recognized as a valuable source of energy
 - Improving the security of supply
 - Untapped potential
 - Opportunity to promote W-t-E

- **Other documents**

- **Pros**

- Promotion of waste energy and energy of waste
 - Incentive for cogeneration
 - Incentive for using heat in District Heating and cooling networks
 - Incentive to improve efficiency

Waste-to-Energy Which benefits ?

WtE Stafford (UK) 2x20t/h

W-t-E – Environmental benefits

1. Nuisances reduction

- Space saving (from 100 to 1)
- No more ugly deposits and smells
- Hygienisation: destruction of biological pollutants
- Hygienisation: removal and treatment of hazardous substances contained in waste
- Reduction of greenhouse gases emission

2. Resources saving

- Material recycling:
 - Recycling friendly; accepts upstream sorting residues of all kinds
 - Downstream recycling: ferrous, non-ferrous metals & aggregates
- Energy recovery
 - Heat, steam
 - Electricity