

WtE development in Europe and legislative prospects

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WtE in Europe - today



CEWEP

Confederation of European Waste-to-Energy Plants

Represents 372 Waste-to-Energy plants in Europe

Waste-to-Energy Plants thermally treat household and similar waste that remains after waste prevention, reuse and recycling by generating energy from it.

Waste-to-Energy (WtE) Plants

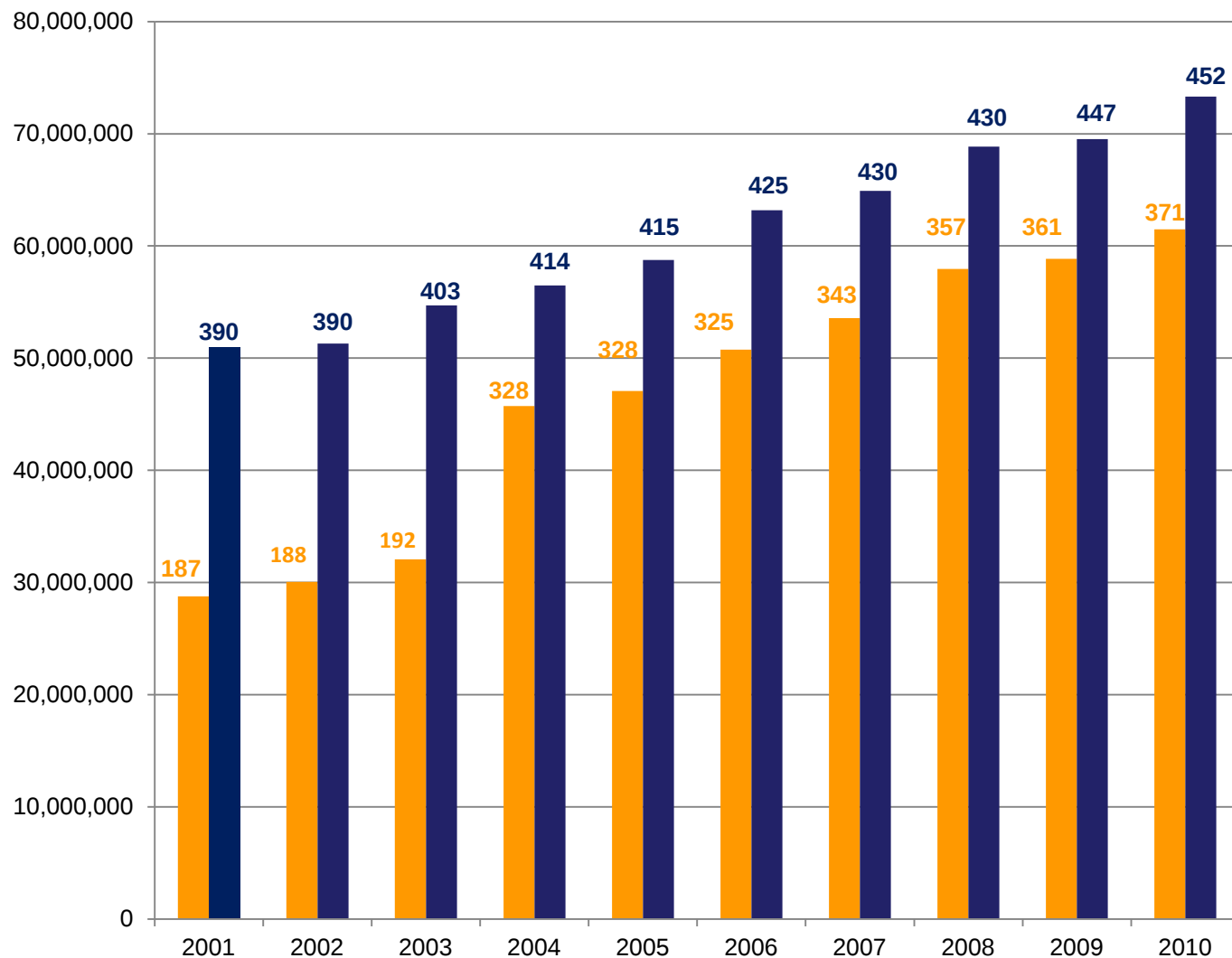
Capacity CEWEP Members Europe: 62 Mio. tonnes (85%)

Capacity Europe: 73 Mio. tonnes

Data for 2010

In total:
452 plants in Europe

Incinerated MSW in EU27+CH+NO 2001-2010, in tonnes



■ Incinerated MSW by CEWEP members

■ Incinerated MSW in EU27+CH+NO

number of plants in CEWEP

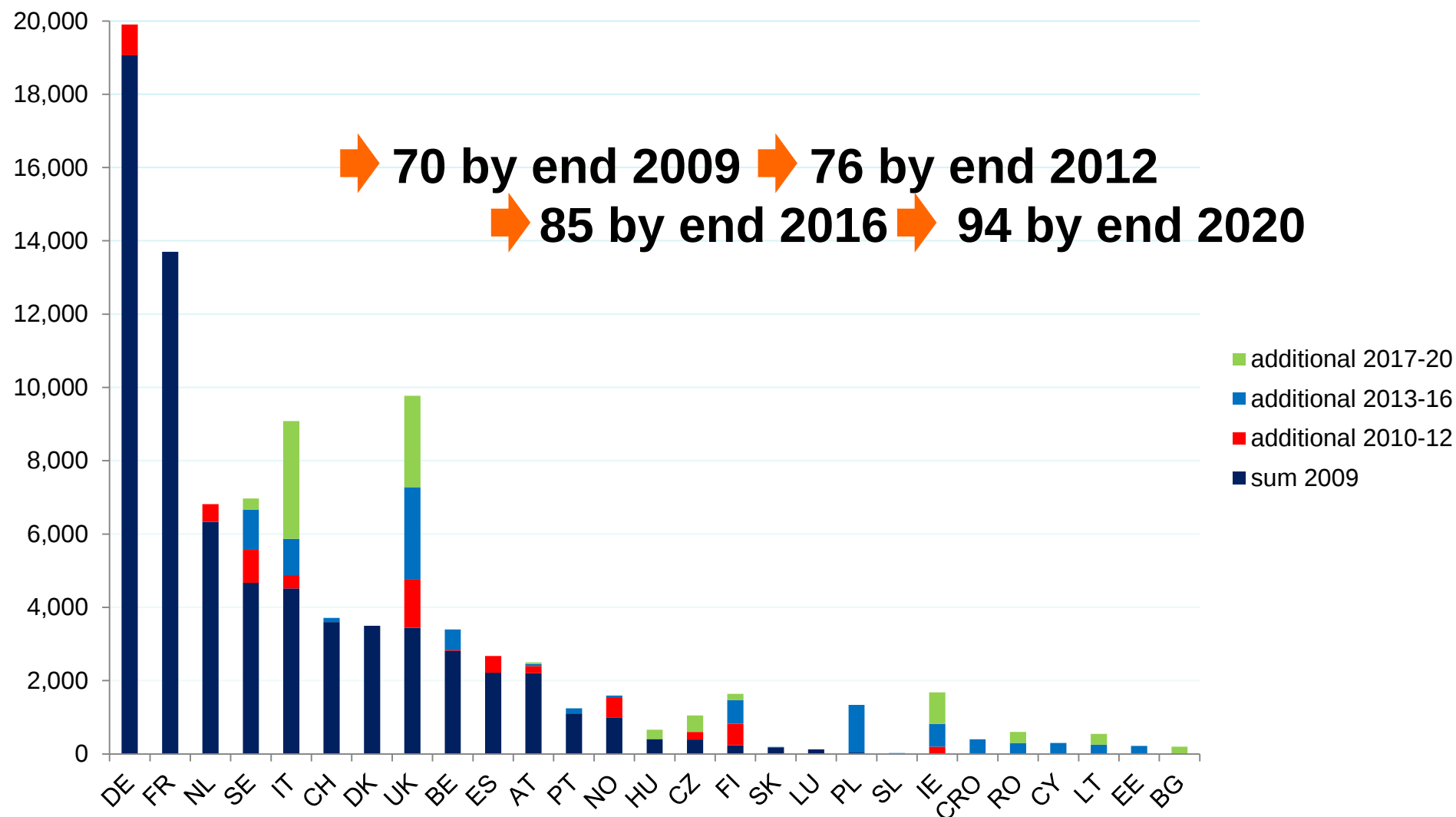
number of plants in EU27+CH+NO



European **WtE capacity development** (million tonnes) est.

At the same time: **Recycling will constantly grow**

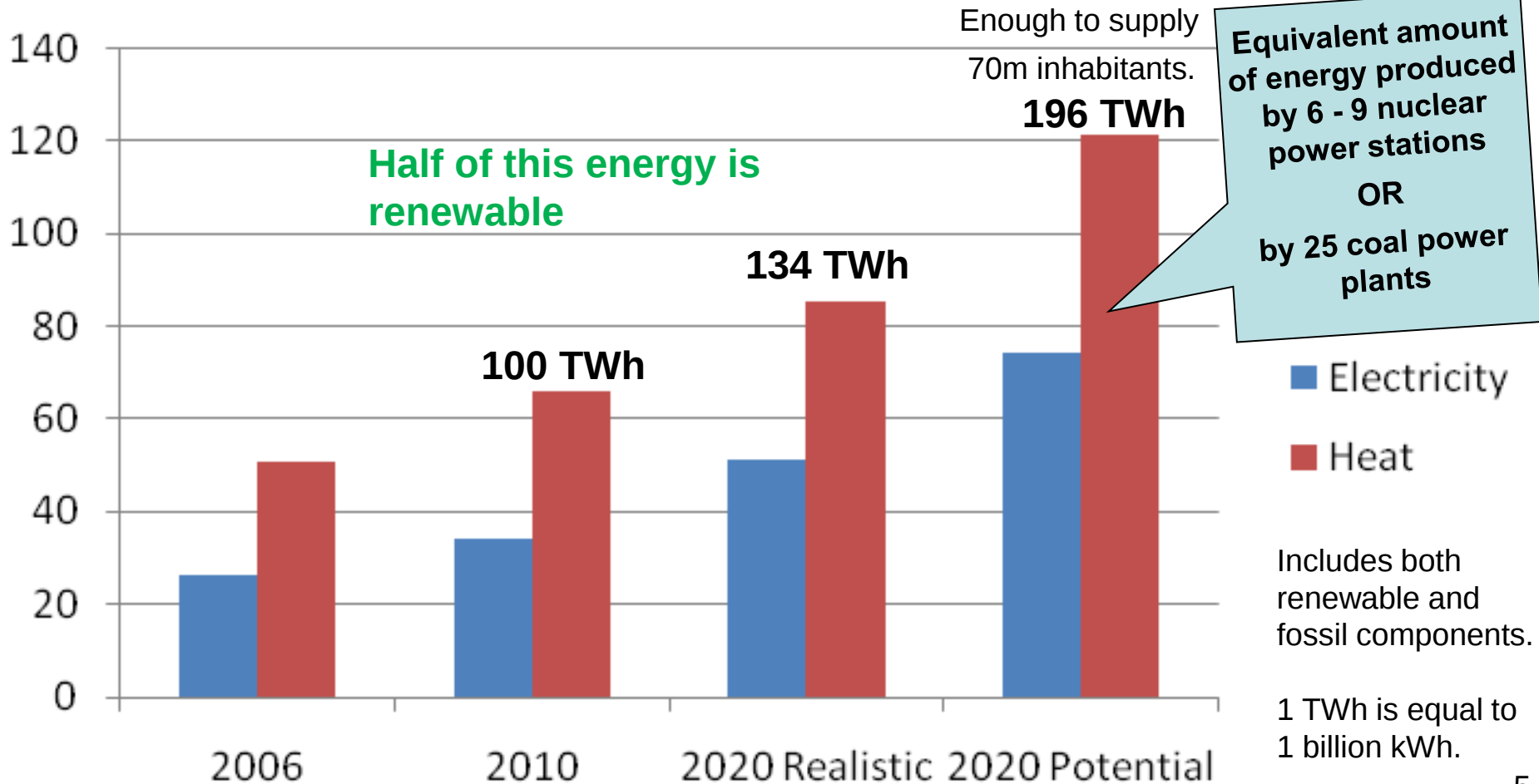
and **landfilling (currently > 90 m t MSW) will be reduced**



Sustainable Energy from Waste-to-Energy



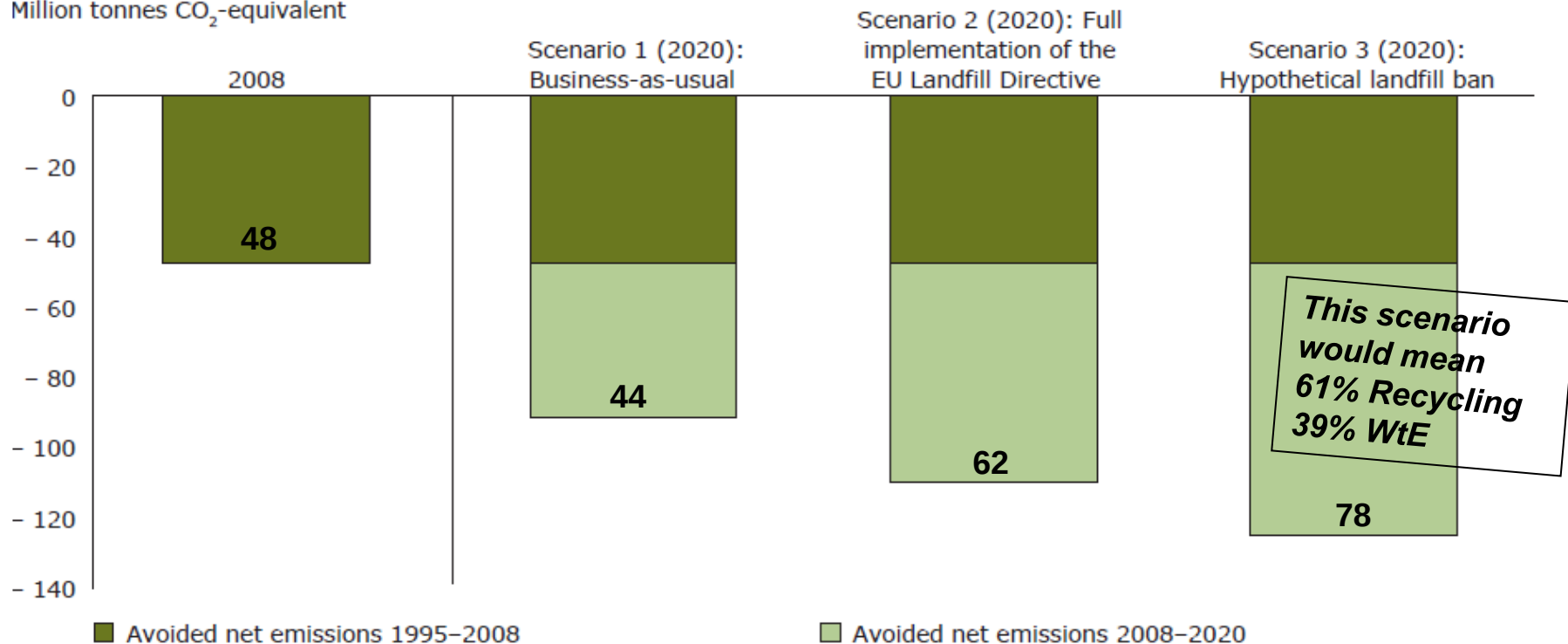
Projection of Total Energy from WtE in TWh



Potential for cutting GHG emissions from municipal waste



Million tonnes CO₂-equivalent

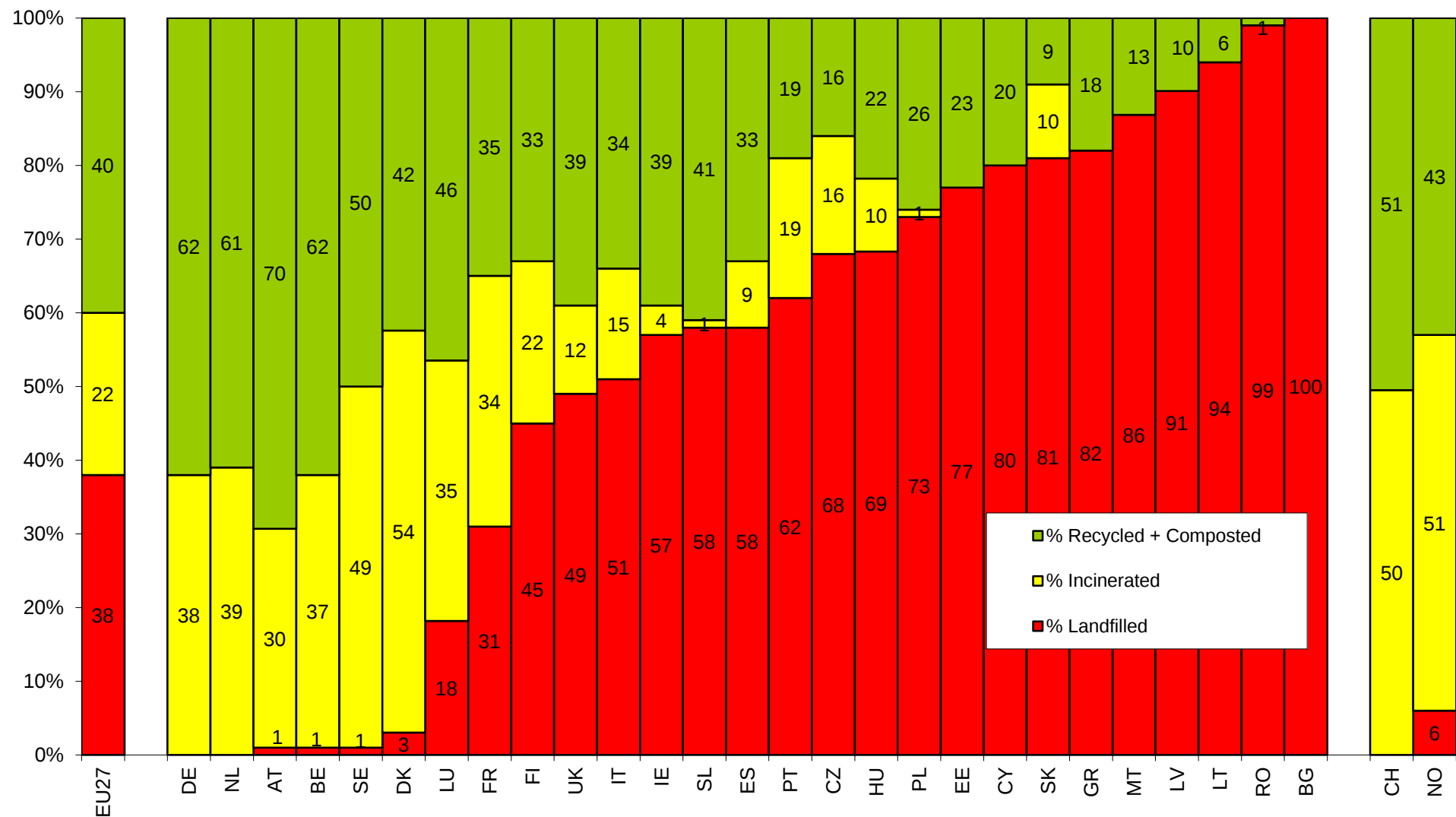


Huge potential benefits for climate change mitigation if more ambitious waste policies were implemented.

Municipal waste treatment in 2010

EU 27 & CH+NO

Graph by CEWEP, Source: EUROSTAT 2010



Moving up the waste hierarchy



Lessons to be learnt from the 5 countries in the EU27

landfilling 1% municipal waste or less:

Austria, Belgium, Germany, the Netherlands and Sweden

- They have all introduced landfill bans
- Waste-to-Energy & Recycling are complementary to divert waste from landfills

→ Turning the waste not suitable for recycling into precious **energy!**



Thanks to progressive EU legislation

► Enormous strides have been made in Waste-to-Energy



- Waste Framework Directive
 - Incentives for Waste-to-Energy Plants to improve their energy efficiency
- Waste Incineration Directive/Industrial Emissions Directive and Best Available Techniques Reference Document
 - Most stringent emission levels, strictly controlled
- Landfill Directive
 - Sets targets to divert biodegradable waste from landfilling
- Renewable Energy Directive
 - Biodegradable waste is a renewable energy source
- Energy Efficiency Directive/ Cogeneration Directive
 - Promoting the use of district heating and cooling

Maximize the energy use of residual municipal waste that is not suitable for recycling

EU Policy recommendations



Waste-to-Energy can help achieve the EU's aim of improving **Resource Efficiency** if:

- ▶ existing EU waste legislation is fully implemented in order to divert waste from landfills to Recycling and to Waste-to-Energy, treating the remaining part not suitable for recycling by generating precious energy from it
- ▶ more ambitious policy to divert waste from landfills would be implemented, providing huge potential benefits for climate change mitigation

Waste-to-Energy contributes towards **Energy Efficiency** goals:

- ▶ There is a major opportunity to use even more energy from waste in the form of heat, if linking of heat (or process steam) customers to Waste-to-Energy Plants would be encouraged. Therefore we need **drivers for improving infrastructure for district heating and cooling** in addition to **incentives to maximize electricity production from waste (incl. grid access)**

WtE relevant legislation in the pipeline

- **Energy Efficiency Directive (EED)**
- **Roadmap for a Resource Efficient Europe**
- **End-of-Waste**
- **Revision of BREFs (Best Available Techniques REference) documents**
- **Review of the European List of Waste**

Energy Efficiency Directive (EED)

European Parliament

legislative resolution from

11th September 2012

To reach the 20% energy saving goal by 2020

Important point for WtE:

Promotion of efficiency in heating and
cooling, Art. 14 + Annex VIII + Annex IX

Encouraging waste incineration plants and other WtE
plants to be connected to the local district heating or
cooling network

Key Features of EED

- **Guaranteed access to the grid and priority dispatch for high-efficiency cogeneration, Art. 15**

Timeframe of implementation



- Publication in Official Journal of the EU and entry into force end 2012
- December 2013: Deadline for transposition by Member States (different for some articles)
- June 2014: Assessment of progress towards 20% saving objective
- 2016: European Commission reviews the Energy Efficiency Directive.

- *landfilling is virtually eliminated* 
- *high quality recycling is ensured* 
- *Energy recovery is limited to non recyclable materials*
 - *What are “non recyclable” materials ???*

Roadmap for a Resource Efficient Europe

Published by EC on 20/09/2011



Waste as a resource, European Commission (EC) will:

- **Review existing prevention, re-use, recycling, recovery and landfill diversion targets** to move towards an economy based on re-use and recycling, **with residual waste close to zero**;
- **Ensure that public funding from the EU budget gives priority to activities higher up the waste hierarchy** as defined in the Waste Framework Directive (e.g. priority to recycling plants over waste disposal);
- **Assess the introduction of minimum recycled material rates, durability and reusability criteria and extensions of producer responsibility** for key products;
- **Continue working within the EU and with international partners to eradicate illegal waste shipments** with a special focus on hazardous waste;
- **Stimulate recycling through economic incentives and developing end-of-waste criteria**;

End-of-Waste status

Article 6 Waste Framework Directive (WFD)

Framework conditions for End-of-Waste status for substances:

- commonly used;
- a market or demand exists;
- meets technical requirements, existing legislation & standards;
- no overall adverse environmental or human health impacts.

The criteria shall include **limit values for pollutants** where necessary and shall take into account any possible adverse environmental effects of the substance or object.

end-of-waste

JRC Commission's Joint Research Centre

Planning 2011-2012



2010				2011				2012			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Frontrunner technical studies on (1) Ferrous scrap and (2) aluminium scrap											
	Completion of second round of technical studies (waste paper, Cu and Cu alloy scrap, waste glass)										
		Third round of technical studies on: (1) biodegradable waste									
						(2) waste plastics					
		Methodology study regarding setting pollutant limit values for aggregates						If appropriate, start of technical studies on aggregates or/and fuels			
		Assessment of the suitability of the different types of waste-derived fuels for end-of-waste									
						Methodological approach to monitoring					

End-of-Waste status



- Criteria for **biodegradable waste** (comments on final report), **waste plastics and waste-derived fuels** (final report expected end of 2012), both studies under discussion by stakeholders, JRC(Joint Research Centre) level
- Criteria for **aggregates including inter alia bottom ash and fly ash from waste incineration** (study not yet published by JRC)
- REACH applies to non-waste

RDF (Refuse Derived Fuel)

- The JRC has commissioned Austrian EPA to carry out a study into “*The suitability of different waste-derived fuels for End-of-Waste status*”.

Conclusion of draft study:

RDF (mixed non hazardous waste) - is NOT a suitable candidate for the EoW status.

- ***Waste Incineration Directive and Waste Shipment Regulation would not apply if waste-derived fuels become product status***

Waste-to-Energy Contributing to Resource Efficiency



Recycling WtE bottom ashes:

- Ferrous and non-ferrous metals can be extracted and recycled into new products, e.g. aluminium castings for the automotive industry.
- Minerals can be used as secondary aggregates, e.g. in road construction or in building products.



*1 t of bottom ash contains
between 10-15% metals,
including 15 to 20kg of
aluminium*

WtE Plants contribute to achieving a recycling society and to improving Europe's resource efficiency, by using unavoidable waste as a valuable resource wherever possible.

Why not recycle 100%?

New recycled materials depend on the quality of the sorted waste:

- Materials sometimes too dirty or too contaminated (e.g. vacuum-cleaning bags)
- Mixed materials (too difficult to sort)
- Materials degrade after repeated recycling
- Demand necessary for recycled products

If high quality recycling is not possible, the waste should be turned into energy, rather than being landfilled.

Residues from recycling also often need thermal treatment

Even countries with the highest recycling rates in Europe (e.g. Germany, Netherlands and Austria) depend on WtE to treat remaining waste not suitable for recycling.

Review of the European List of Waste and of the hazardous properties



- Assessment of hazardous properties of waste in European List of Waste (ELoW) should be based on chemicals legislation: Classification, Labeling and Packaging of Substances and Mixtures (CLP Regulation).
- A working group consisting of representatives of the Member States and the Commission is preparing necessary amendments to the ELoW.
- CEWEP: CLP Regulation only refers to products and not to waste. Biological testing not suitable for heterogeneous waste as bottom ash!

Future EU legislation



- Review of Waste Framework Directive in 2014
 - Review of Recycling targets (50% Recycling of municipal waste; other waste streams?)
- Review of Landfill Directive
 - Add other waste streams to be phased out from landfills, e.g. plastics waste?
- Energy Roadmap 2050:
should focus more on heating and cooling

Best Available Techniques REference documents (BREFs) revision timeframe



Work programme for the EIPPC Bureau, Seville:

- Start 2013: review of **BREF Waste Treatment** (inter alia bottom ash, stabilisation processes); estimated final draft 2015
- Start 2014: review of the **BREF Waste Incineration** (adopted 2006); estimated final draft 2016

Informing the public about Waste-to-Energy: CEWEP exhibit in European Parliament 8-12 Oct 2012



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