

5th CEWEP Congress on Waste-to-Energy 2010



30 June to 2 July, in Antwerp

Climate Protection and Waste ▶

**The contribution of Waste Processing
to Sustainable Energy and GHG mitigation**

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CEWEP

Confederation of European Waste-to-Energy Plants



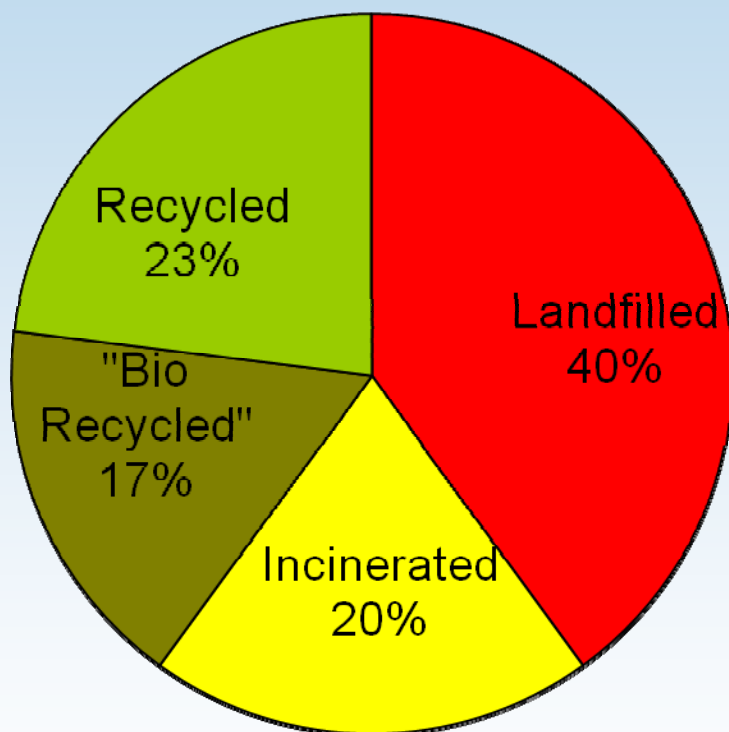
CEWEP represents 390
Waste-to-Energy plants across Europe.

They thermally treat household and
comparable waste, which is not other-
wise reused or recycled, and
generate energy from it.

In 2009 across Europe they supply:
30 TWh electricity and
55 TWh of heat.



Treatment of MSW in Europe EU27, 260 m tpa in 2008



A large part of the EU27 waste is still wasted by putting it on landfills with negative effects on the environment.

But waste is a precious resource which should be utilised!

Treatment of Municipal Solid Waste in the EU 27 in 2008
Source: EUROSTAT

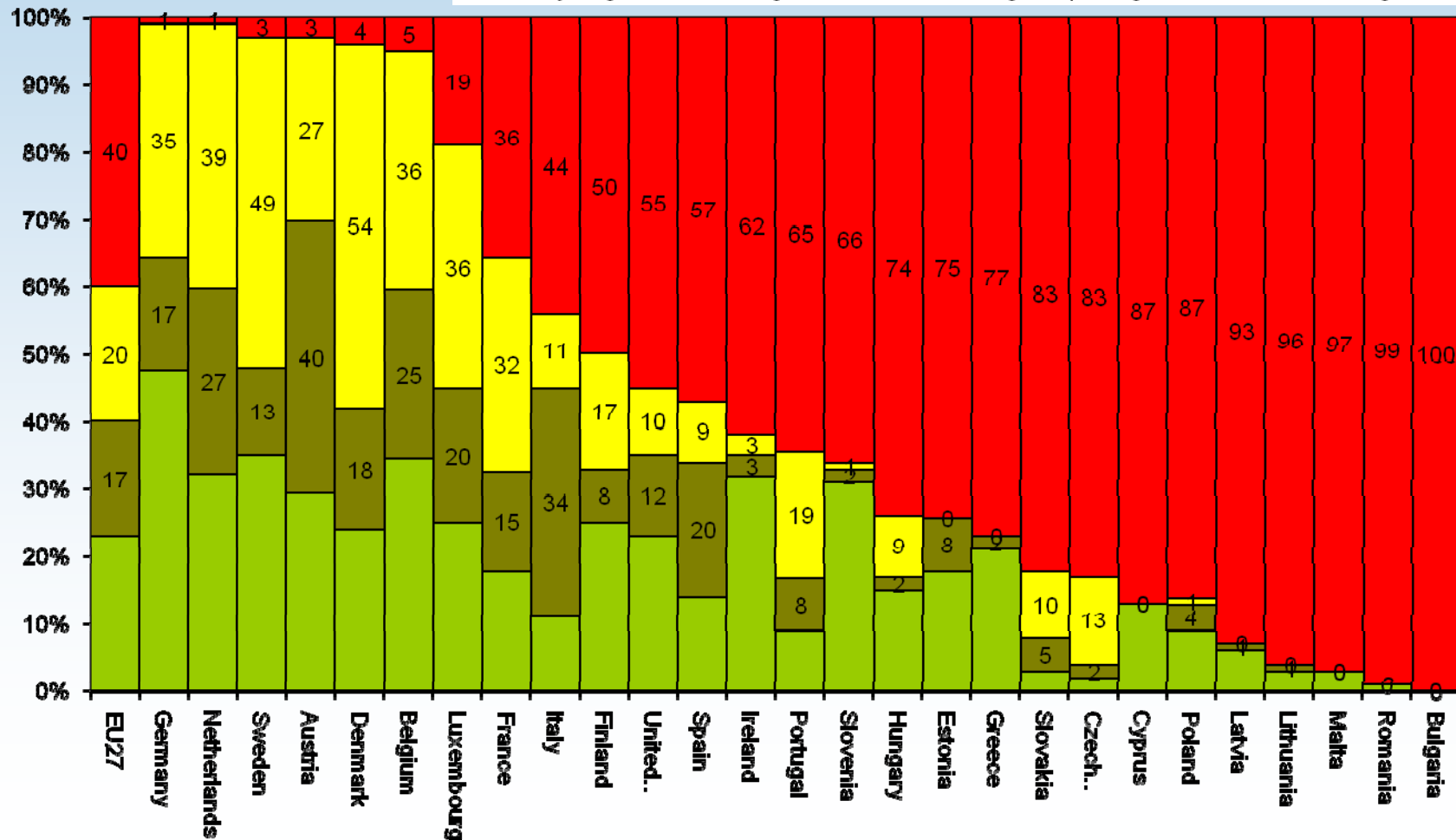
Treatment of MSW in the EU 27 in 2008

Source: EUROSTAT



EUROSTAT, Treatment of MSW In EU 27 In 2008

“Bio-Recycling” refers to biological treatment including composting, MBT and anaerobic digestion.



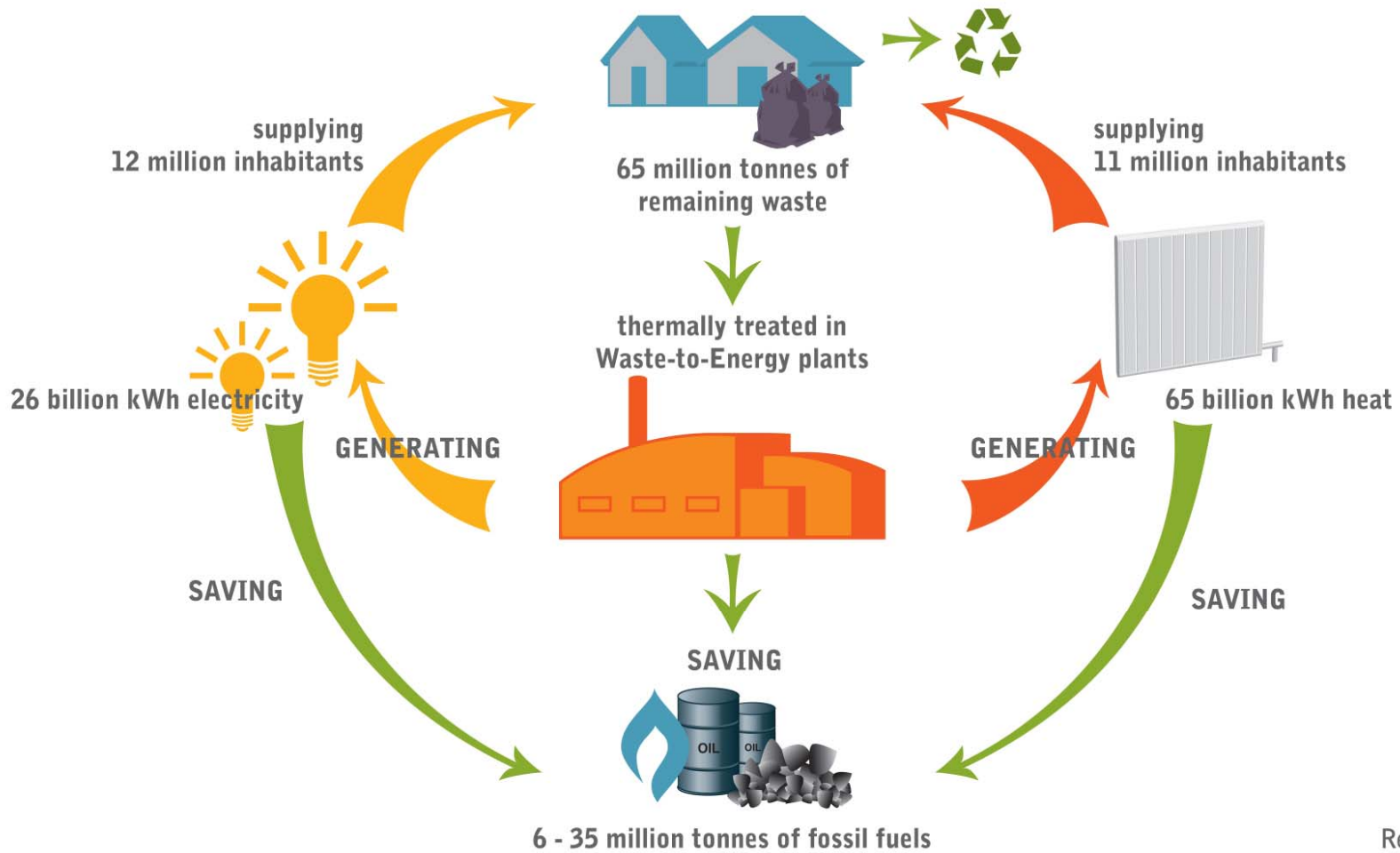
Waste to Energy in Europe

(Incineration with Energy Recovery of MSW
and comparable waste)



- dominant route for the treatment of residual waste
- Fully proven and environmentally safe
- About 71 million tonnes of capacity in operation in 2009 supplying about 30 TWh of electricity (8 million households) and about 55 TWh of heat.
- about 50 % of this energy is classified as renewable
- represents a net CO₂ saving and avoids the use of fossil fuels elsewhere for energy production

Waste to Energy Cycle

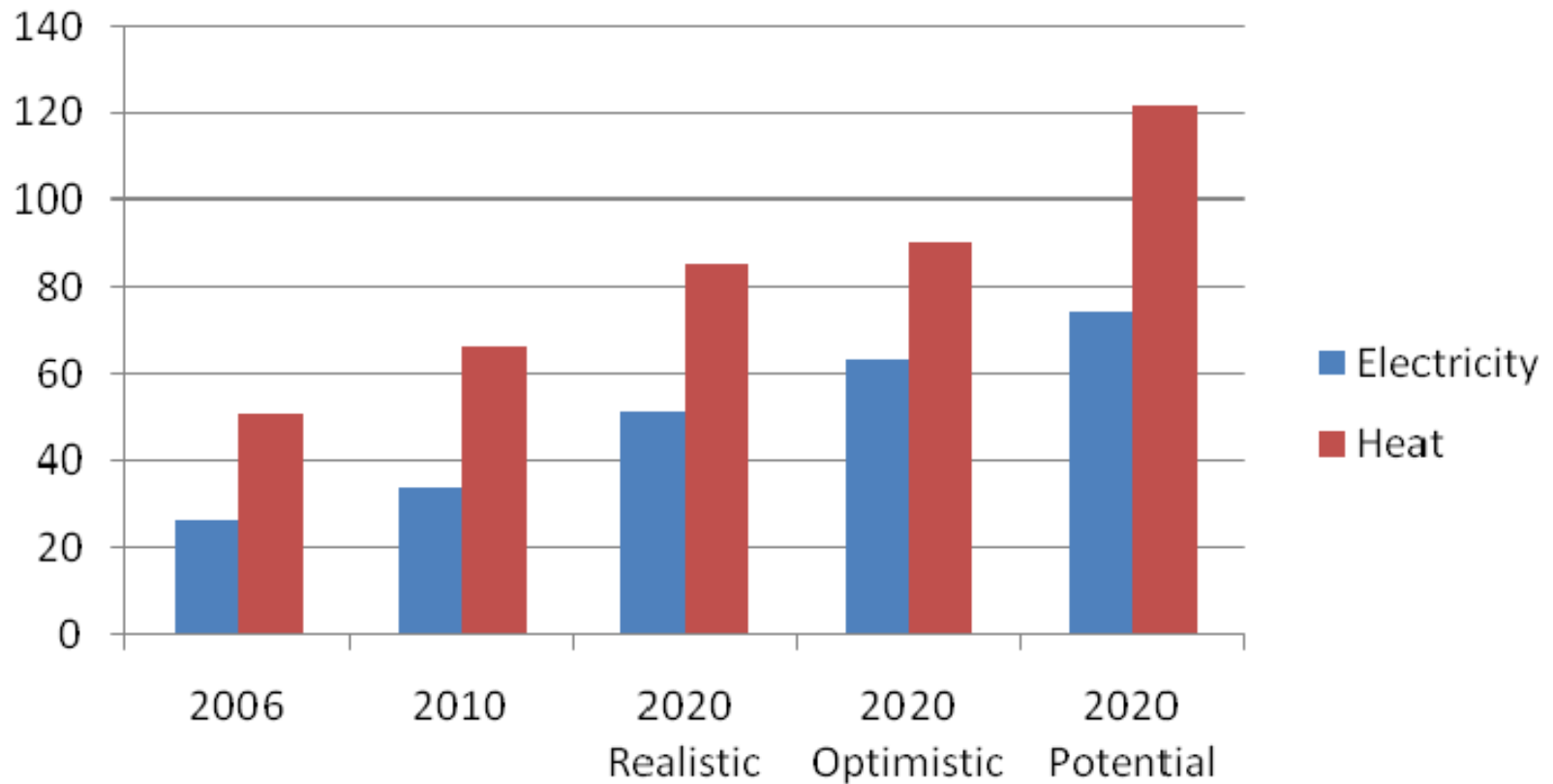


Reference year 2007

The **Total** Energy Output projection for WtE



Projection of Total Energy from WtE in TWh

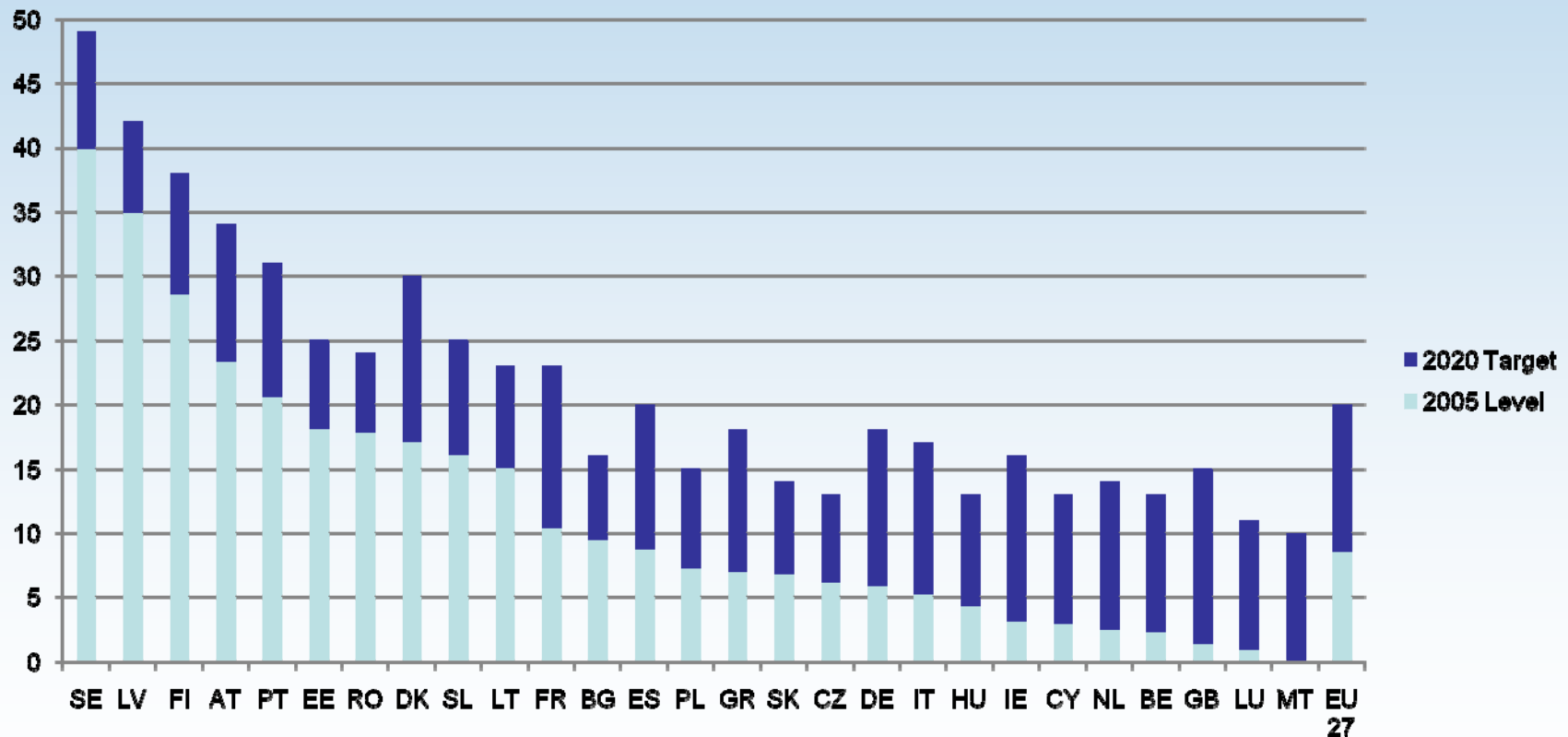


Includes both renewable and fossil components.

EU 27 have ambitious targets for Renewable Energy overall 20 % of consumption by 2020

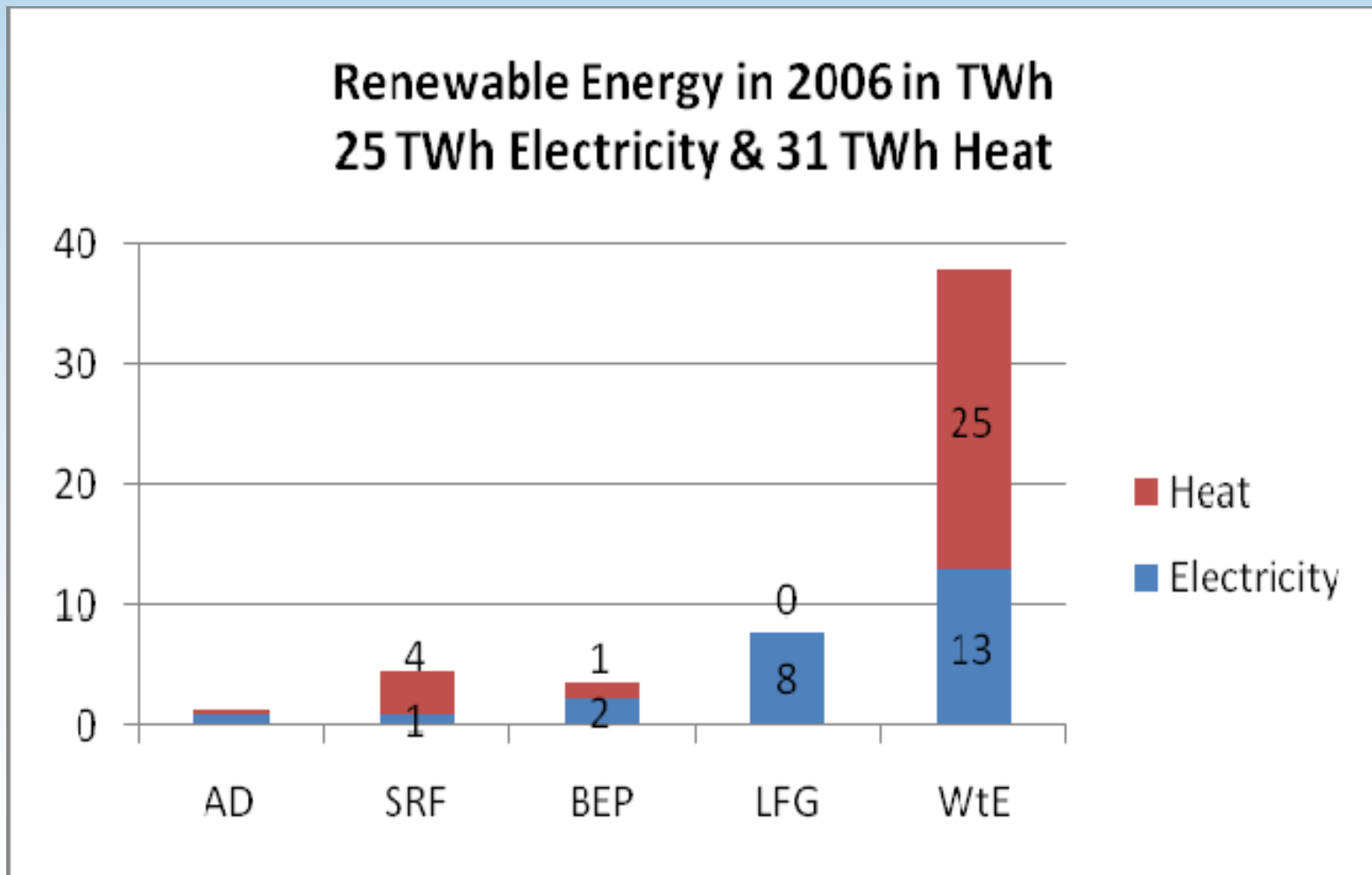


Binding targets 2020 and actual 2005 Renewable Energy as % of total consumption EU 27

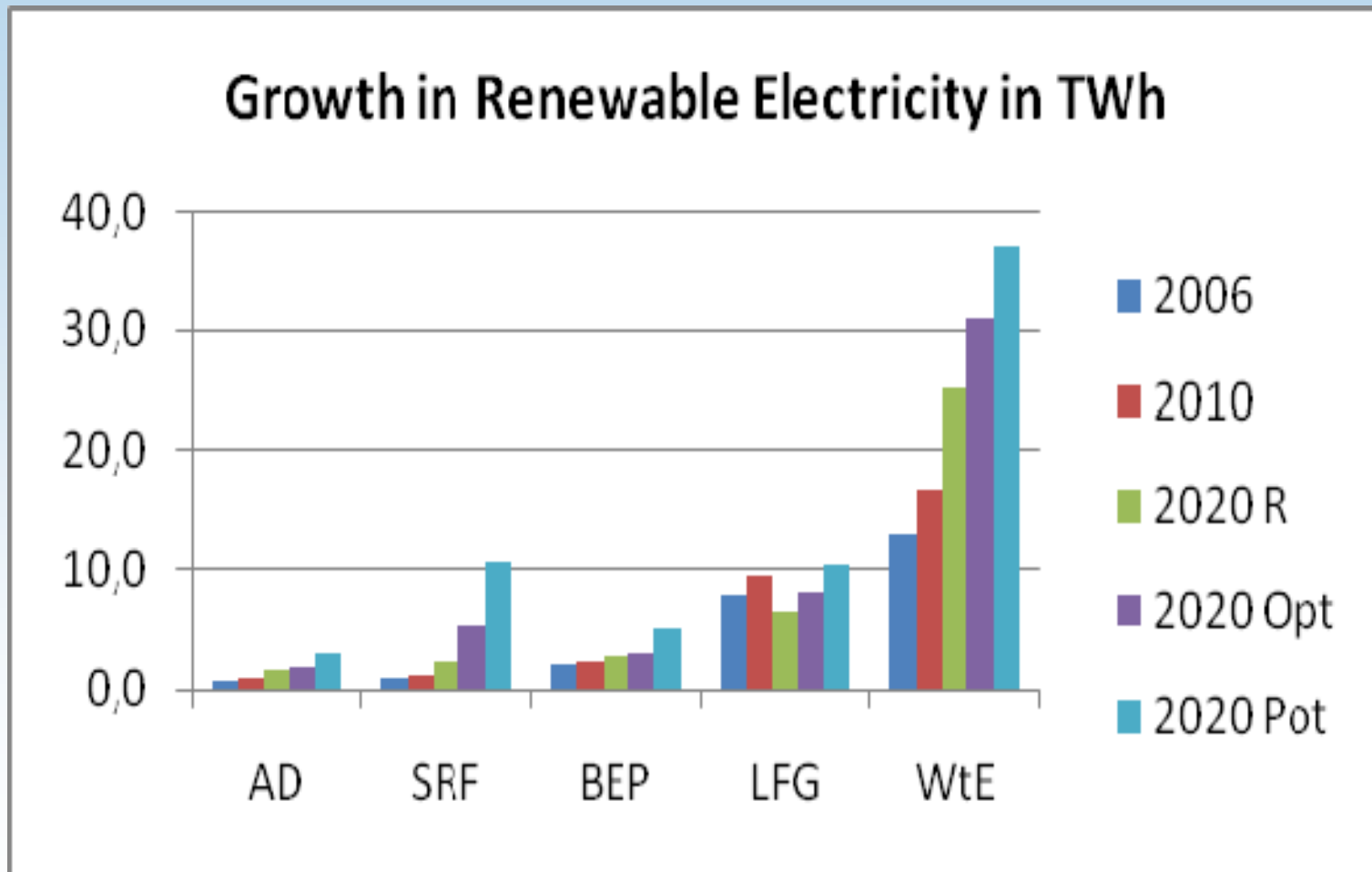


The gap to close is about 1500 TWh of Renewable Energy
 (at a flat – zero growth - EU energy consumption level of 13700 TWh)

Renewable Energy 2006 from Waste (all routes) for Europe in total



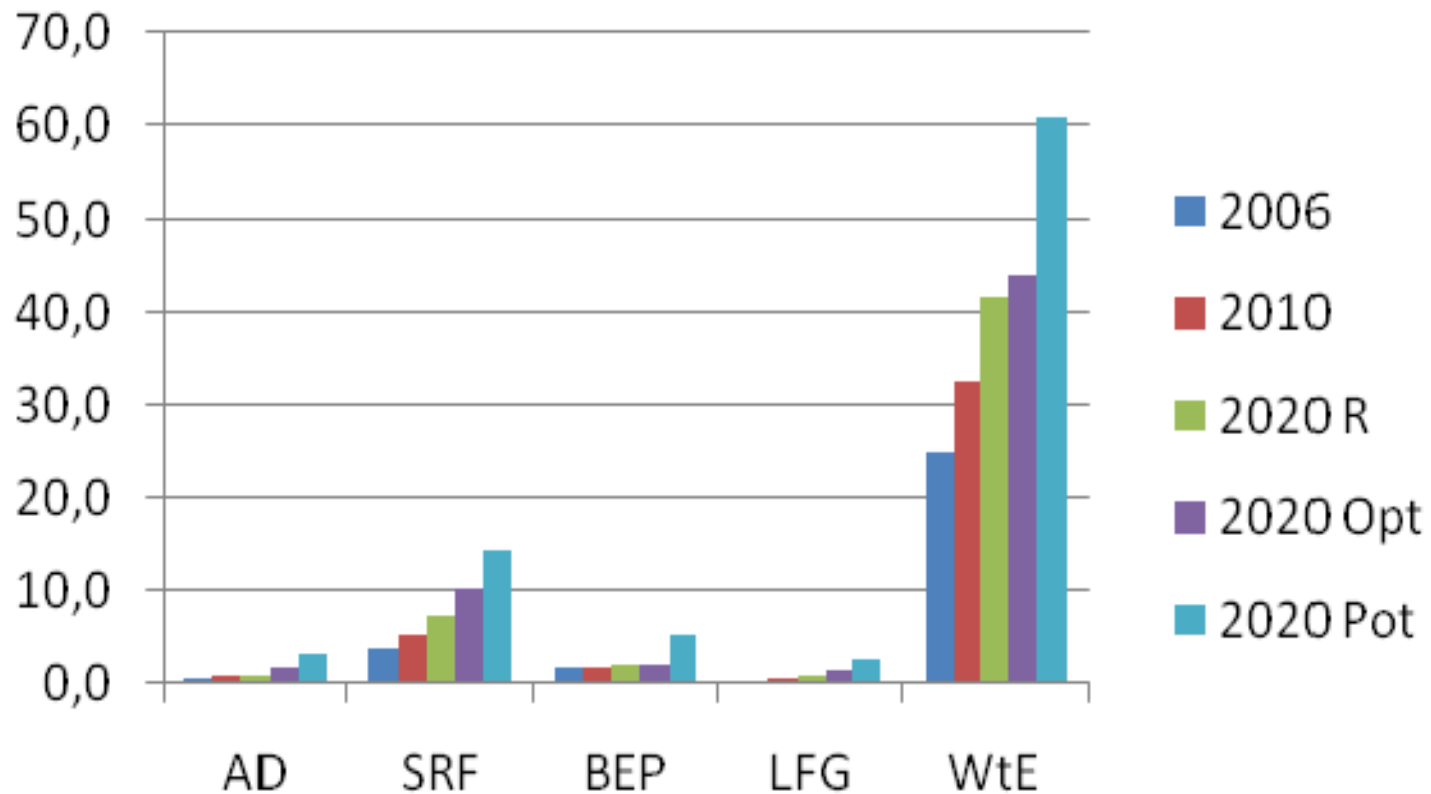
Growth in Renewable Electricity from all routes for Europe in total



Growth of Renewable Heat from all routes for Europe in total



Growth of Renewable Heat in TWh



How much does Energy from Waste contribute to the EU 27 binding targets?

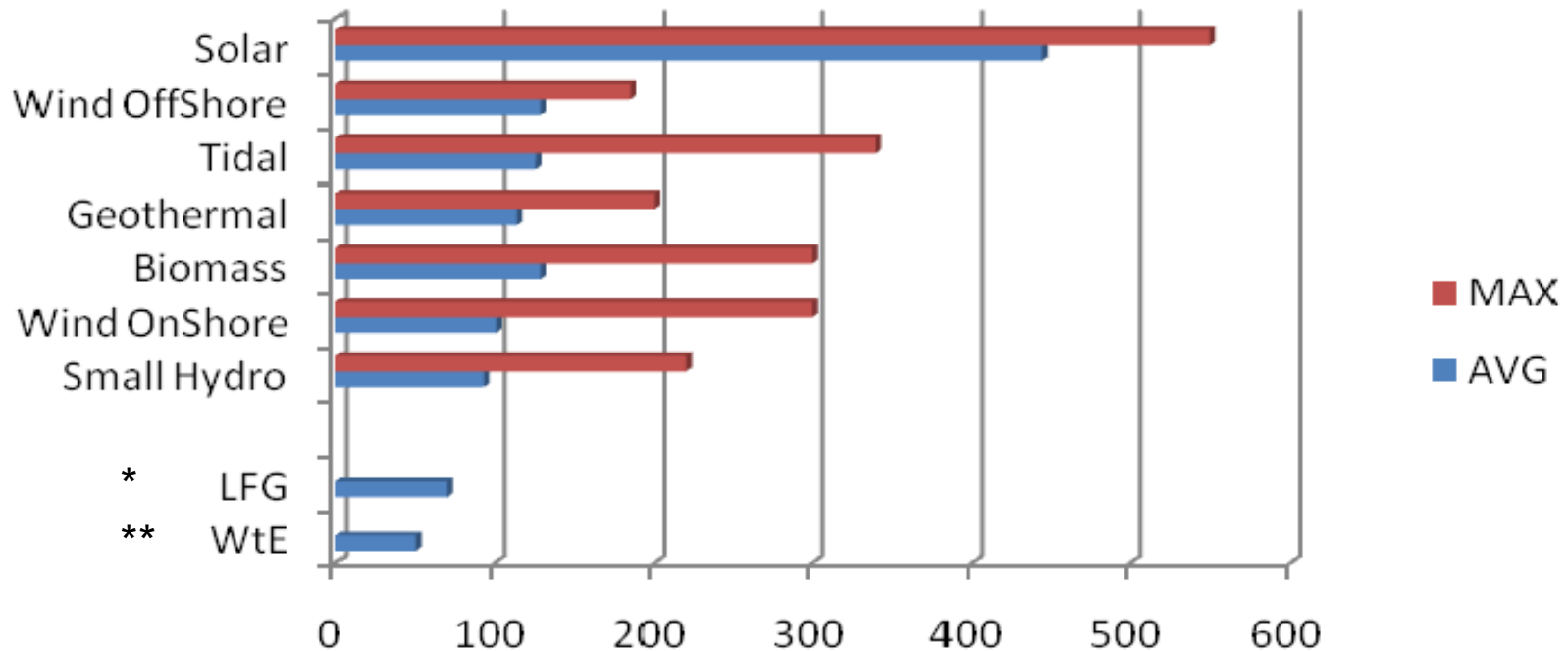


	2006	2020	Comments
Total EU 27 Energy consumption	13700 TWh	13700 TWh	If no growth in consumption !
Total EU 27 Renewable Energy	1258 TWh (8,5 %)	2735 TWh Target 20 %:	The gap is about 1500 TWh
Renewable contribution from Waste EU 27	55 TWh	Between 90 – 151 TWh	Waste can potentially fill 95 from the gap of 1500 TWh
Share Energy from Waste of Total RE	4,4 %	Between 3,3 and 5,5 %	assuming Binding EU Targets are achieved !

RE from waste is by far the cheapest form of Renewable Electricity !



Price level of various sources of Renewable Electricity ,
average EU in €/ MWh (incl Subsidies) 2007

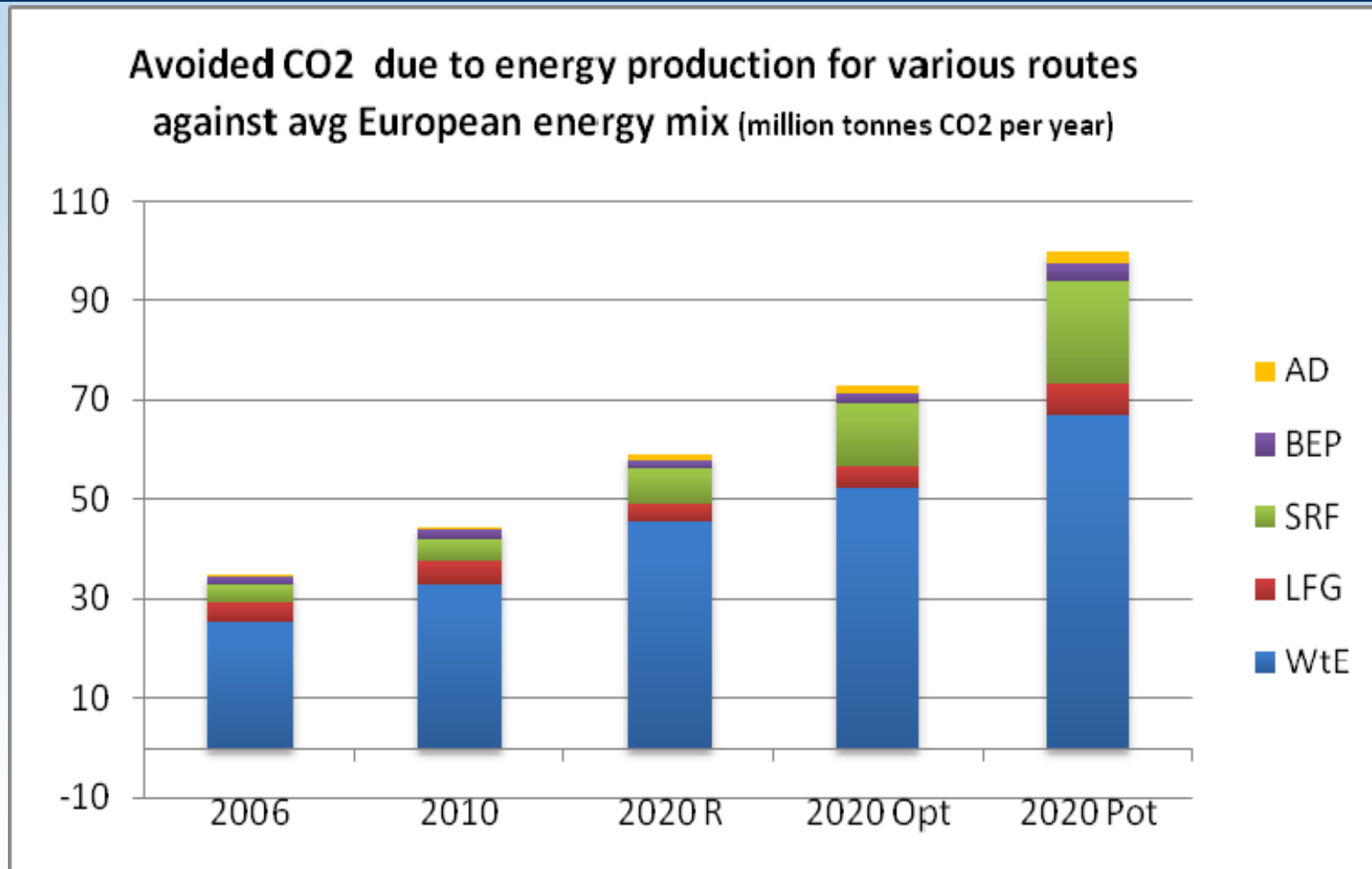


Source: EREF report 2009;

* * Price level for WtE €45 -65 €/ MWh. Only few % of WtE Electricity gets some Renew Subsidy

* For LFG avg Feed in Tariff in EU: 71 € (incl minor subsidy)

The Avoided CO₂ Emissions due to Energy Production from Waste are huge



Please note that this data excludes fossil emissions and therefore does not represent a full carbon footprint analysis for the various routes !

Net CO₂ emissions from modern WtE



A state-of-the-art WtE plant **saves CO₂** in the range of 100 to 350 kg CO₂ eq per tonne of waste processed *, depending on:

- Waste composition (% biogenic)
- Amount of heat and electricity supplied
- Country Energy substitution mix

If WtE replaces (poor) landfilling, then there would be additional savings of 200 to 800 kg CO₂ /tonne waste

* The more energy can be supplied as heat the higher the CO₂ savings

Thank you for your attention !



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