

Circular Economy and Energy Union

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SVDU

Dutch Waste Management Association
Partner in the circular economy

Séché environnement
Séché global solutions

SIDOR

EKOKEM
Saving natural resources

avfallnorge

SavoieDéchets
SYNDICAT MIXTE DE TRAITEMENT DES DÉCHETS

AVALER
Associação de Entidades de Valorização Energética de Resíduos Sólidos Urbanos

AEVERSU
ASOCIACIÓN DE EMPRESAS DE VALORIZACIÓN ENERGÉTICA DE R.S.U.

BELGIAN WASTE-TO-ENERGY
BW2E

ITAD
Interessengemeinschaft der Thermischen Abfallbehandlungsanlagen in Deutschland e.V.

PRAŽSKÉ SLUŽBY
akciová společnost

STEO

AVFALL SVERIGE
Swedish Waste Management

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FCC Environment
from waste to resource

urbaser

Danish Waste Association
Waste is resources

utilitalia
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Fortum

EnergyAnswers International

CEWEP

Confederation of European Waste-to-Energy Plants

CEWEP is the European umbrella association of the owners and operators of Waste-to-Energy Plants.

Representing about 390 plants in 22 countries with a capacity of ca. 73 million tonnes.

Waste-to-Energy

Creating reliable and cost-effective energy from citizens' waste

Alkmaar WtE plant, the Netherlands

Waste-to-Energy Plants in Europe 2014

- Waste-to-Energy Plants operating in Europe (not including hazardous waste incineration Plants)
- Waste thermally treated in Waste-to-Energy Plants in million tonnes

Data supplied by CEWEP members and national sources
* Includes plant in Andorra

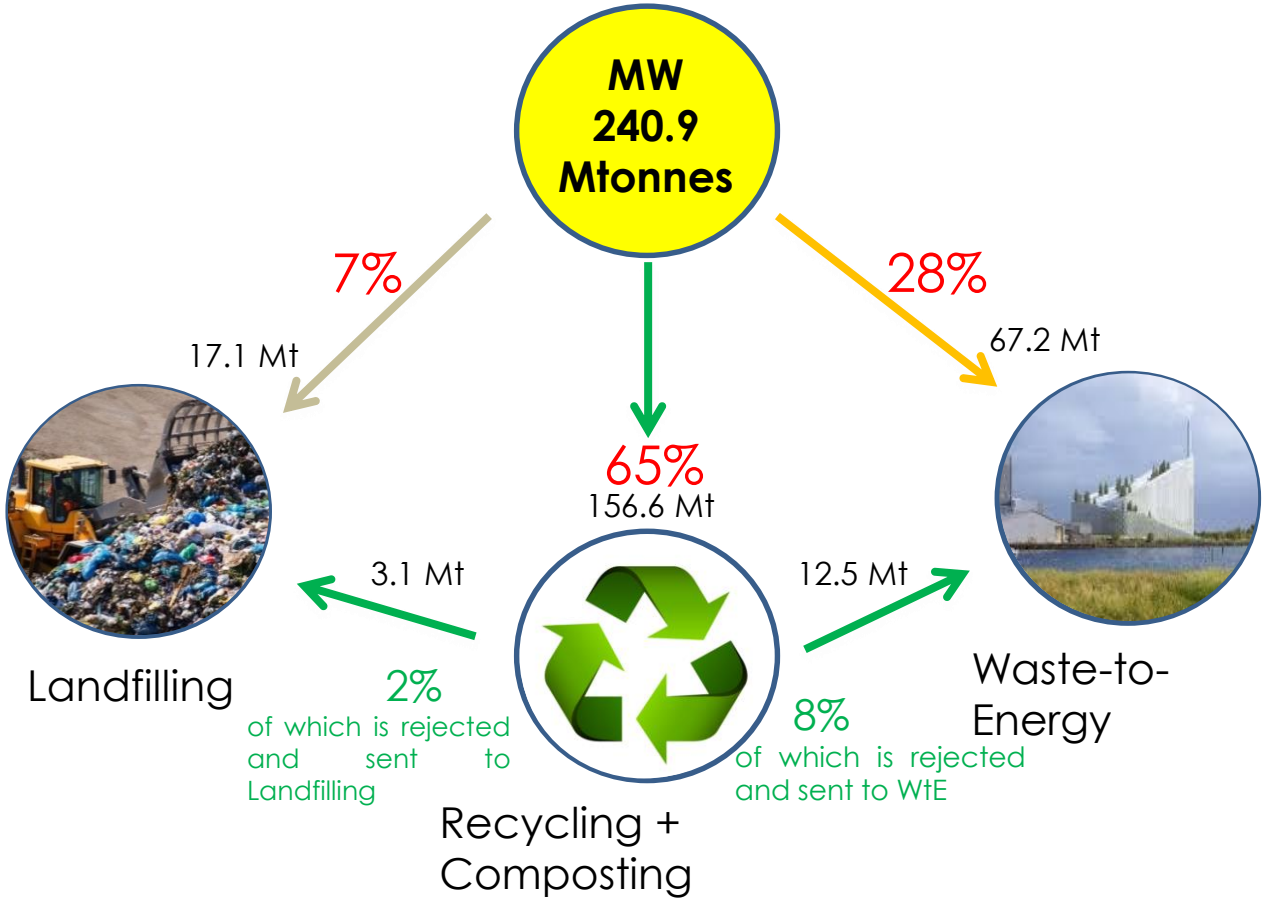
CEWEP

info@cewep.eu ▸ www.cewep.eu

European Waste Import/Export to WtE Plants

	Import	Export
Belgium		146,526 t including RDF
Denmark	324,000 t (2015)	
Finland		45,000 t (2014) to Sweden, Estonia and Germany
Germany	1.3 million t (2014) – 39% from the UK	
Italy		182,000 t (2014) Municipal Waste 298,000 t non-hazardous special waste 70,000 t hazardous waste mainly to Germany (2013)
Netherlands	1.6 million t (2014)	ca. 300,000 t to Germany
Norway	59,000 – 104,000 t RDF (2014/15)	700,000 t (2014) to Sweden
Sweden	1.4 million t 700,000 t (2014) from Norway 680,000 t (2014) from UK/Ireland 20,000 t (2014) from Finland	
UK + Ireland		2.94 million t (2015) RDF to NL, DE, SE 648,629 t (2014) from Ireland

Municipal Waste (MW) statistics with Circular Economy Targets 2030 based on EUROSTAT 2014



Assumptions:

Preparing for Re-use and Recycling: **65%** of municipal waste (MW) generated, of which:
8% is rejected and goes to WtE
2% is rejected and goes to landfills
Member States (MS) with landfill ban or high landfill taxes will not send rejects from recycling to landfill, only MS using the 10% landfill cap will probably do so.

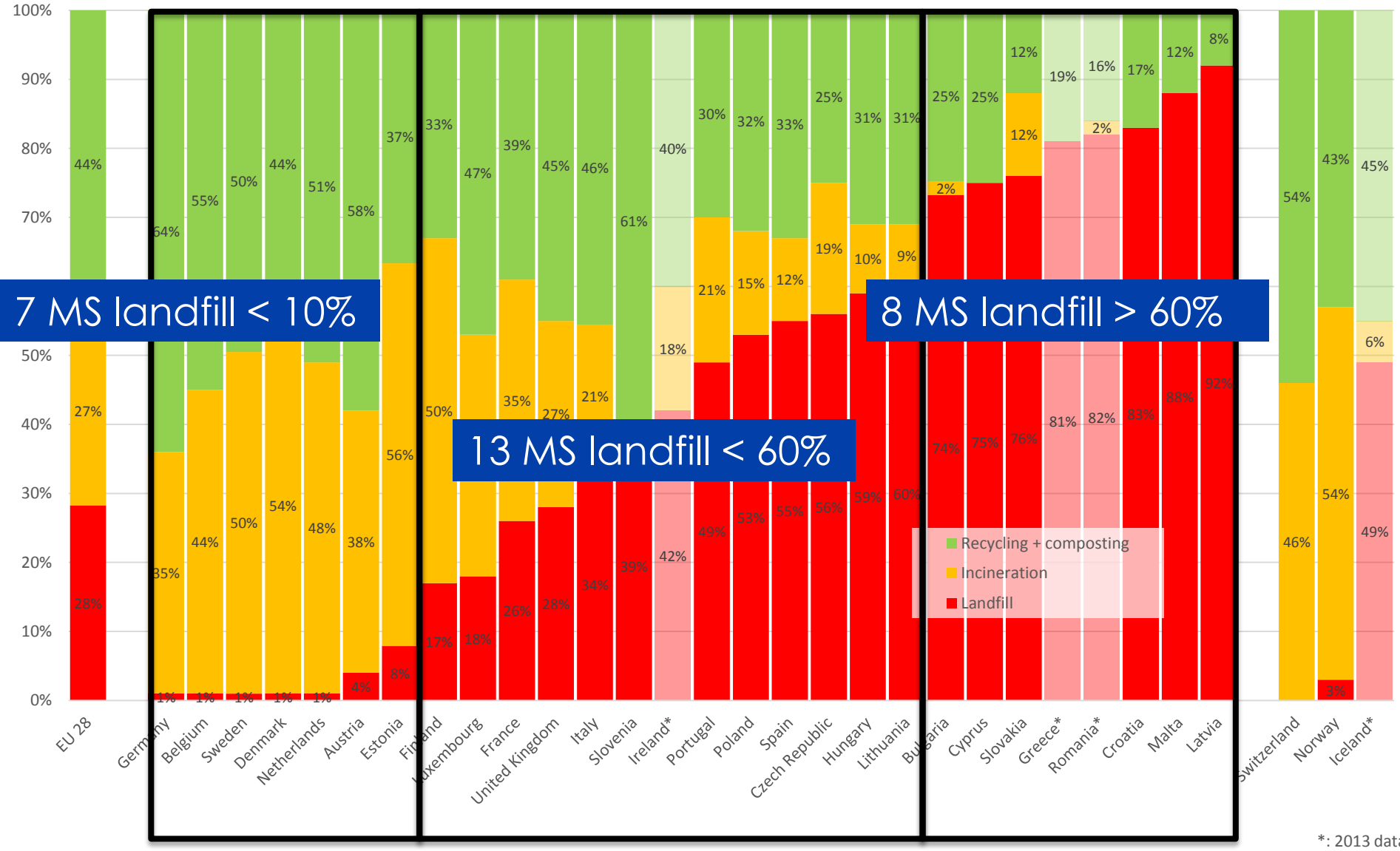
Landfill:
Max. 10% of MW generated:
Assumption: 10% if landfill rate is >10% in 2014
MS's real landfill rate of 2013 if ≤ 10% in 2014
AVERAGE **7%**

Waste-to-Energy:
Remaining MW
AVERAGE **28%**

WtE capacity need for **MW** in 2030 if targets applied: **79.7 Mtonnes**
2014 available WtE Capacity for **MW** according to EUROSTAT: **64.4 Mtonnes**
Attention: Input to WtE is not only MW, but also Commercial&Industrial waste

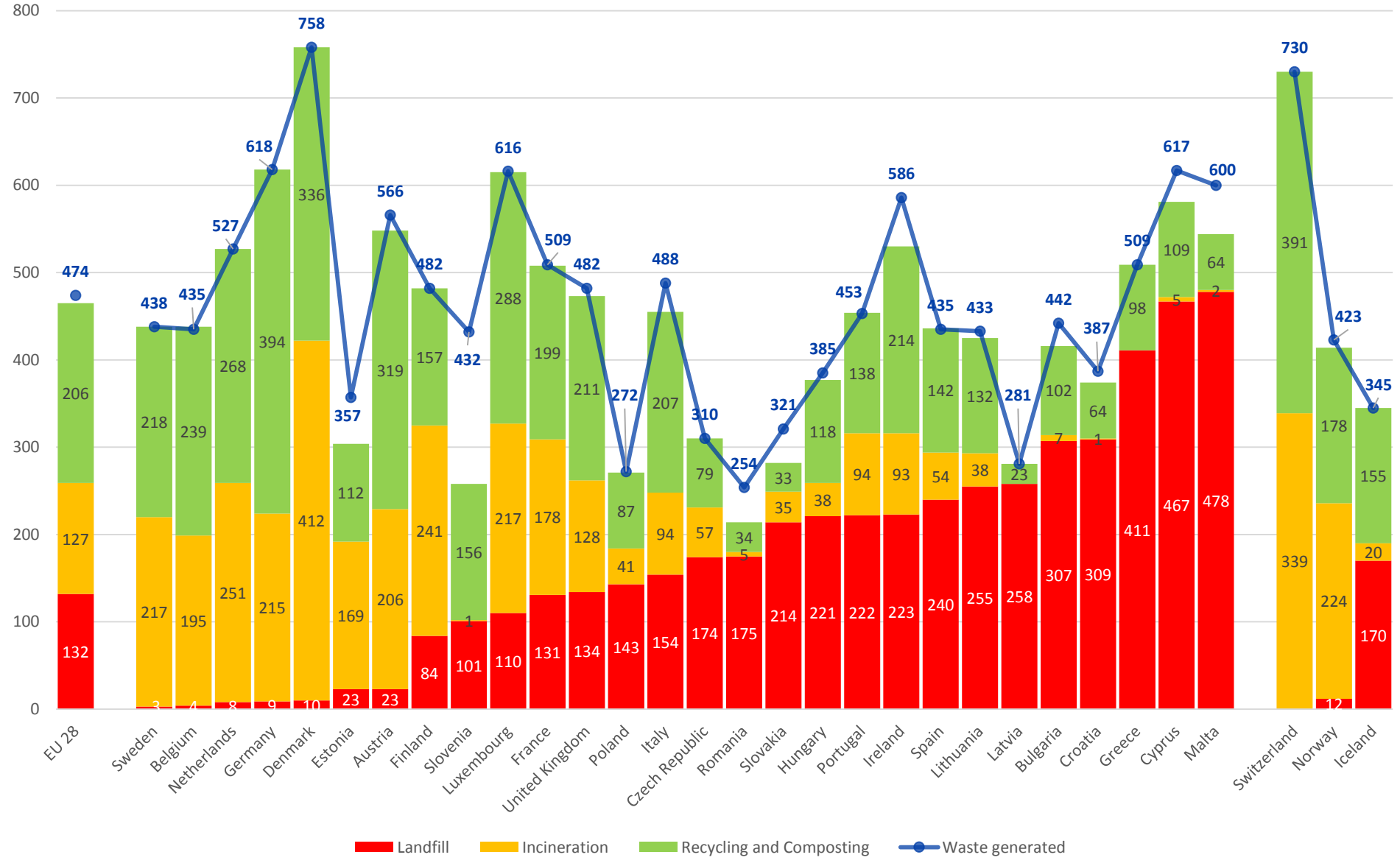
Municipal waste treatment in 2014

EU 28 + Switzerland, Norway and Iceland

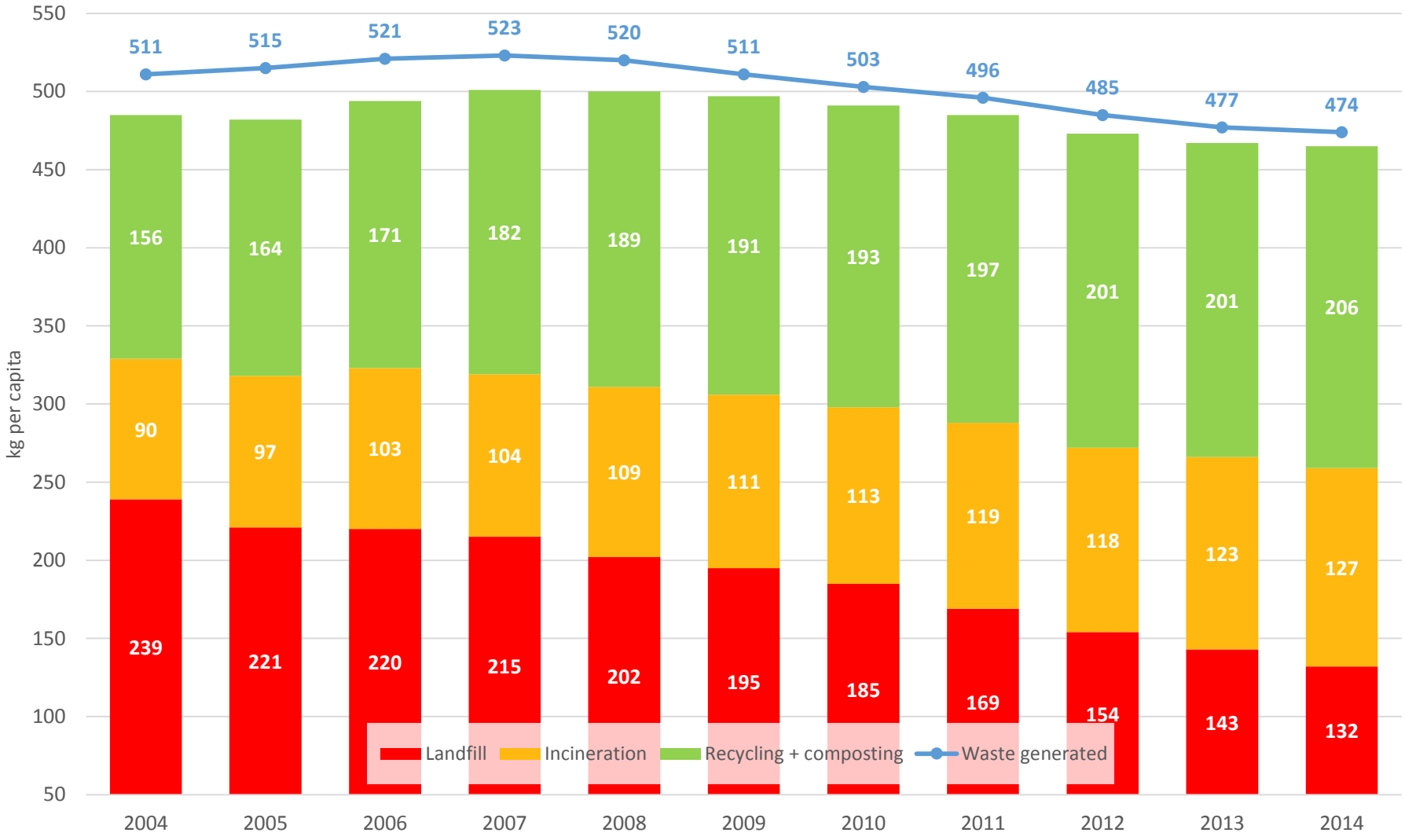


*: 2013 data

Municipal waste treatment in 2014 & Waste generation per capita
EU 28 + Switzerland, Norway and Iceland
(kg/capita)



Municipal waste treatment in 2004 - 2014
EU 28



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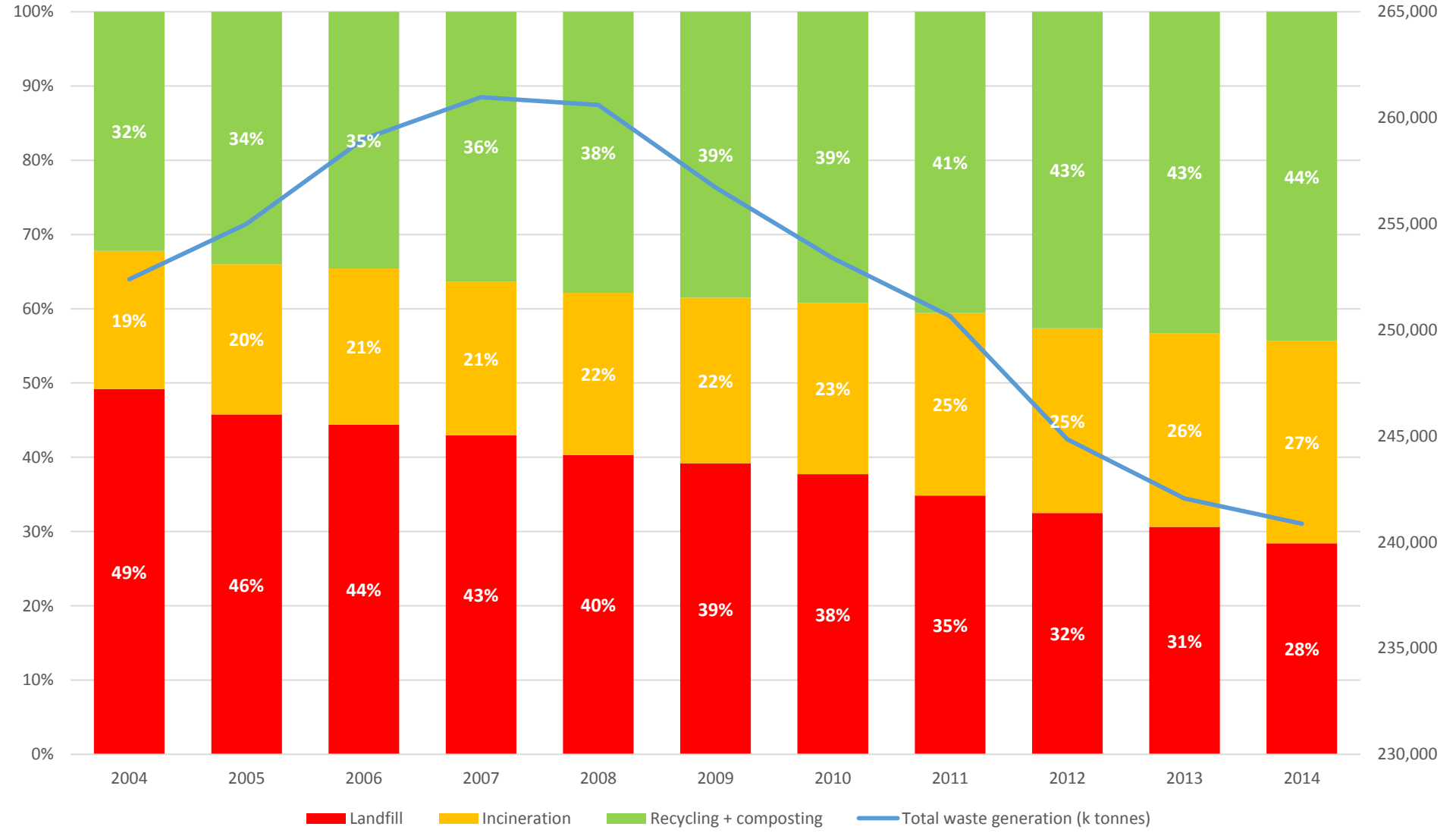
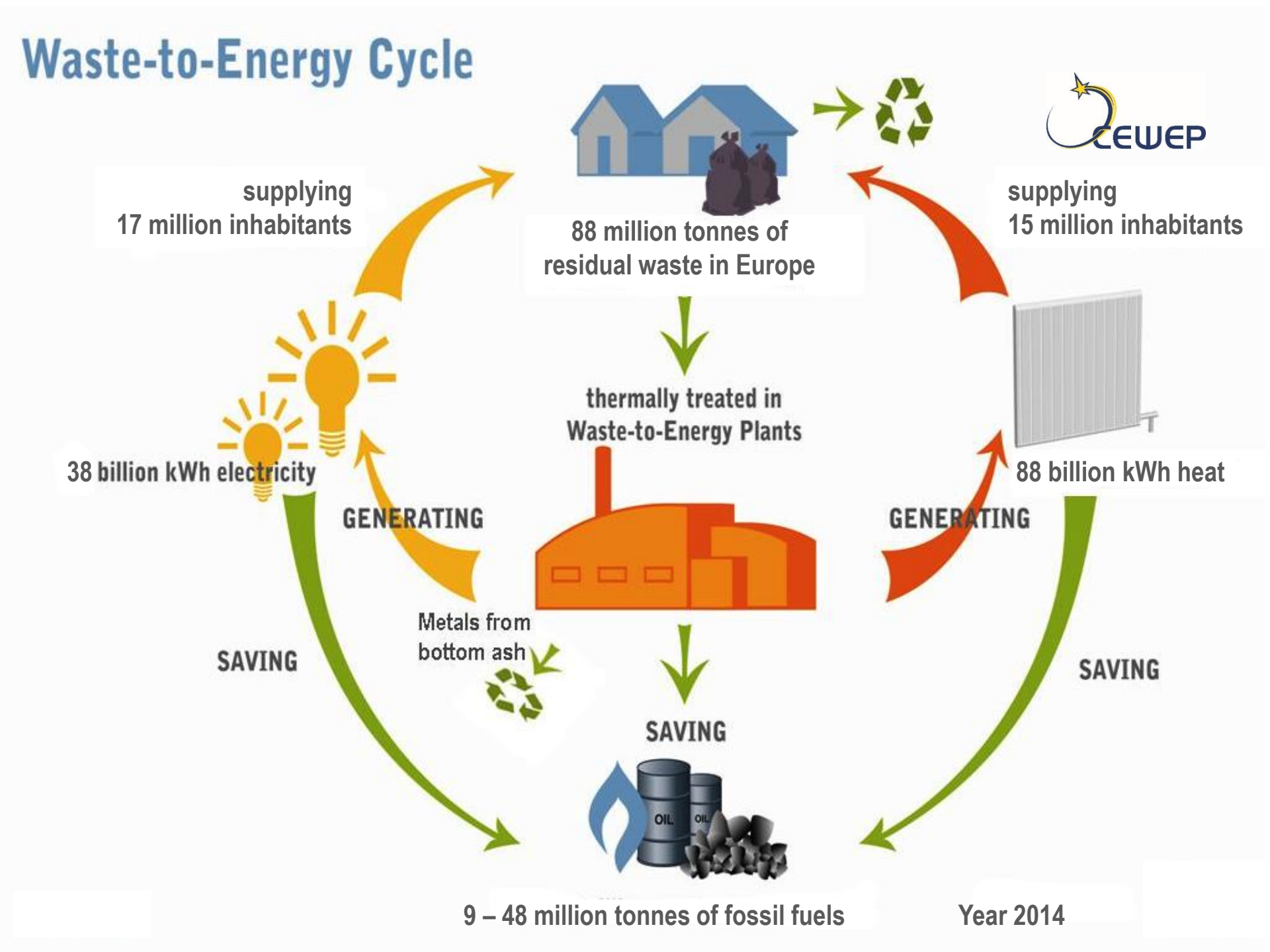
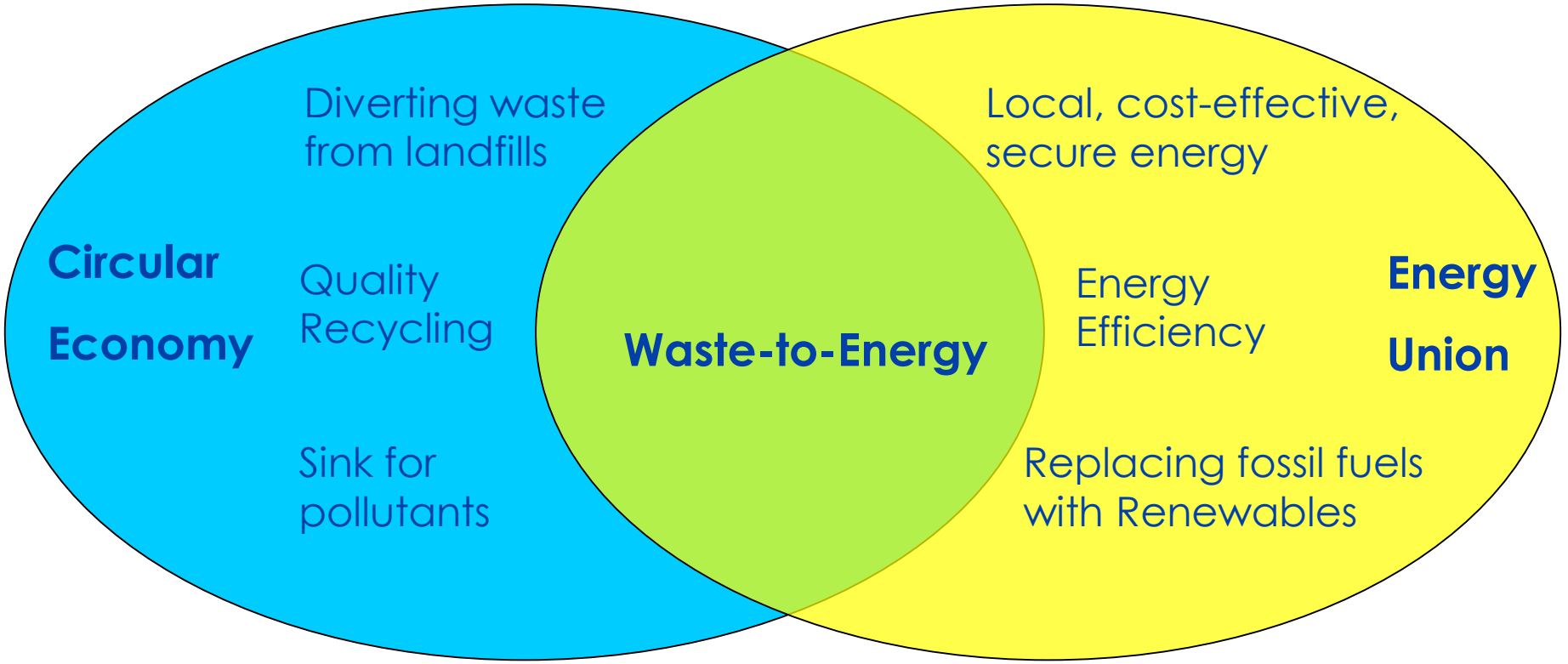


Waste-to-Energy Cycle



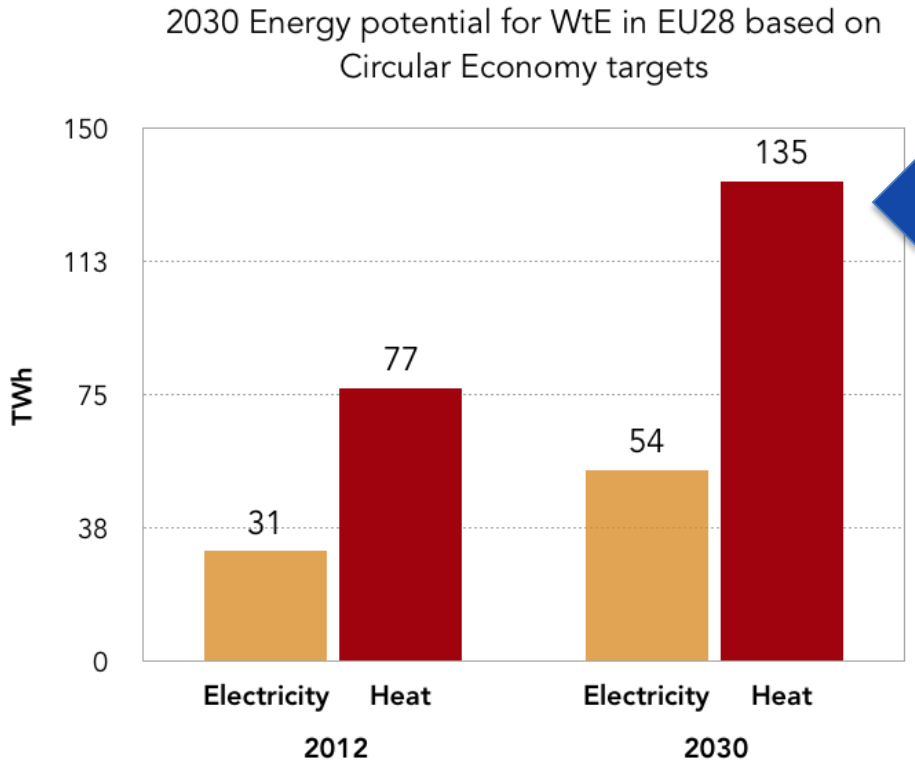
Waste-to-Energy as part of Circular Economy & Energy Union



Sustainable Energy from Waste-to-Energy: Potential for 2030

Based on Circular Economy targets for MW (Municipal Waste (Dec 2015):

- Reuse + Recycling: **65%** by 2030
- Landfill: maximum **10%** by 2030
- Residual MW to WtE + *residual Commercial&Industrial (C&I)waste*



Potentially producing **189 TWh** of secure energy from MW and C&I waste

Which would replace 10% of the energy supplied by the coal sector*

*Heat Roadmap Europe 2050 (Second pre-study for the EU27), May 2013

Energy Union
synergy with Circular Economy

- The European Commission's Energy Union Strategy (February 2015) announces to*:*

*"further establish synergies between energy efficiency policies, resource efficiency policies and the circular economy. This will include exploiting the potential of "**waste to energy**"."*

- Commission will publish WtE Communication in 2016

Malmö Waste-to-Energy plant, Sweden

Brescia Waste-to-Energy plant, Italy

CEWEP Recommendations for WtE Communication

- Boost Energy Efficiency
  - Synergies with existing and further exploitation of District Heating/Cooling systems and industrial heat use (low hanging fruits)
  - Grid access: WtE should not be put at disadvantage in comparison to intermittent renewable energy sources (double task of WtE plants to treat the waste in an environmentally sound way makes it difficult to stop the plant during peak energy supply from other sources)

WtE's sanitary task is to keep the environment clean, destroy pollutants and protect human health

- Better waste management
  - Diverting waste from landfills to quality recycling and WtE
  - Use existing waste treatment capacities (LCA analysis) and develop new treatment options where necessary
  - Emerging technologies are only an option for waste treatment once they have been proven at industrial scale.
  - WtE residues management (Bottom Ash: metal recycling and recovery of aggregates).

Recycling valuable metals from Waste-to-Energy bottom ash

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 tonne of recycled metals from bottom ash saves 2 tonnes of CO_{2equ} emissions

1 tonne of bottom ash contains between **10-12% metals**, including 15 to 20kg of aluminium

Waste-to-Energy Plants contribute to achieving a recycling society and to improving Europe's Resource Efficiency, by using unavoidable waste as a valuable resource wherever possible.

Common statement on metal recycling from bottom ash

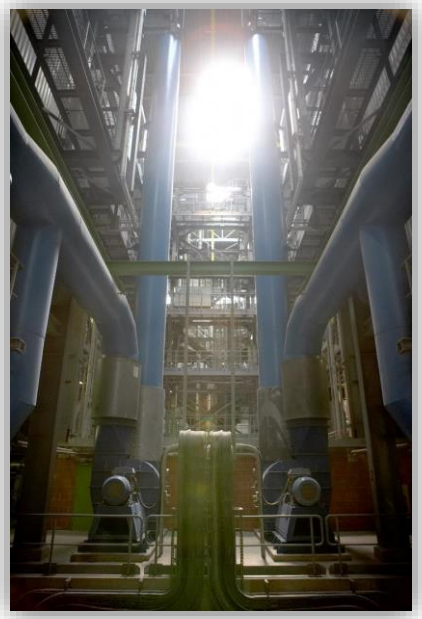
Recycle metals from bottom ash and save Greenhouse gas emissions

The Metal Packaging and Recycling Industry, the Recycling Industry of bottom ash and the Waste-to-Energy sector jointly support the European Commission's approach to boost quality recycling and markets for secondary raw materials in the Circular Economy Package.

Therefore, our industries very much support the Commission's proposal to count recycling of metals from Waste-to-Energy's bottom ash towards recycling targets in the Waste Framework Directive[1] and the Packaging and Packaging Waste Directive[2], while meeting certain quality criteria. This will give Waste-to-Energy plant operators additional incentives to recycle even more metals from the bottom ash.

CEWEP Policy Recommendations

- Uniting the Circular Economy and Energy Union goals
- Taking a holistic approach
- Considering the role of WtE in integrated systems, providing
  - Affordable and secure energy
  - Reducing Europe's dependence on fossil fuel imports
  - Saving Greenhouse gas emissions



Doel Waste-to-Energy plant, Belgium

and helping

- Quality Recycling by treating the waste not suitable for sustainable recycling
- Diverting waste from landfills
- All in respect of the waste hierarchy!
- Exploring also potenital of C & I waste, not only municipal waste

Thank you for your attention!

Torino Waste-to-Energy plant, Italy

Karanoveren Waste-to-Energy plant, Denmark

For more information:

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