EEF Dinner Debate
4th November 2013 EP Brussels

From **Waste** to Local **Energy**

Dr. Ella Stengler,
Managing Director CEWEP

CEWEP
Confederation of European Waste-to-Energy Plants

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

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

This is how they replace fossil fuels, such as coal, gas and oil, used by conventional power plants.

At the same time Waste-to-Energy Plants help to reduce Greenhouse gas emissions by diverting waste from landfills.

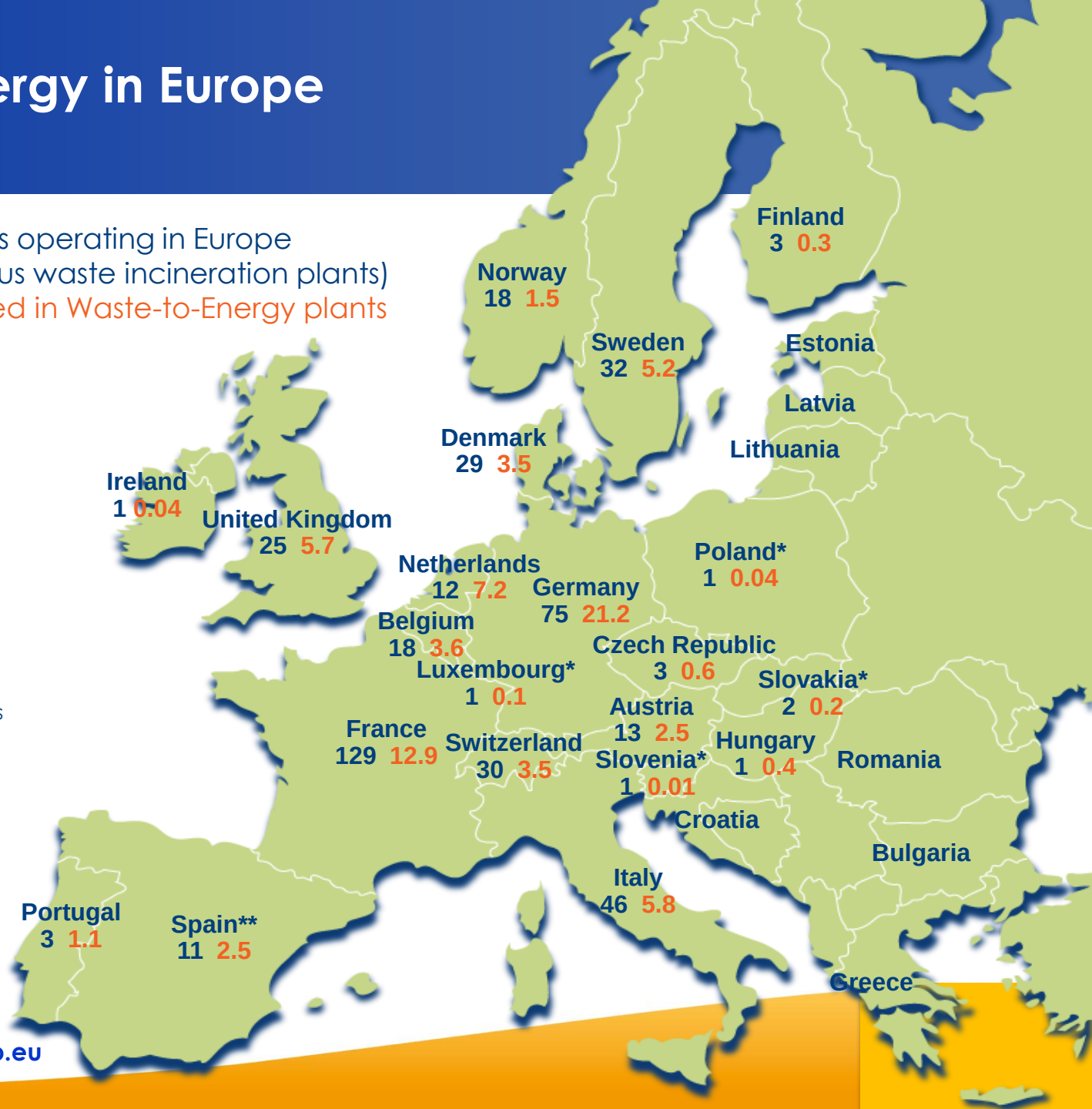
Alkmaar WtE plant, the Netherlands

Waste-to-Energy
Creating reliable, cost-effective, local energy from citizens' waste

Waste-to-Energy Plants (in 2011)
Capacity Europe: **78 Mio. tonnes; 454 plants**
CEWEP Members : **66 Mio. tonnes (85%); 378 plants**

Waste-to-Energy in Europe in 2011

- 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 unless specified otherwise

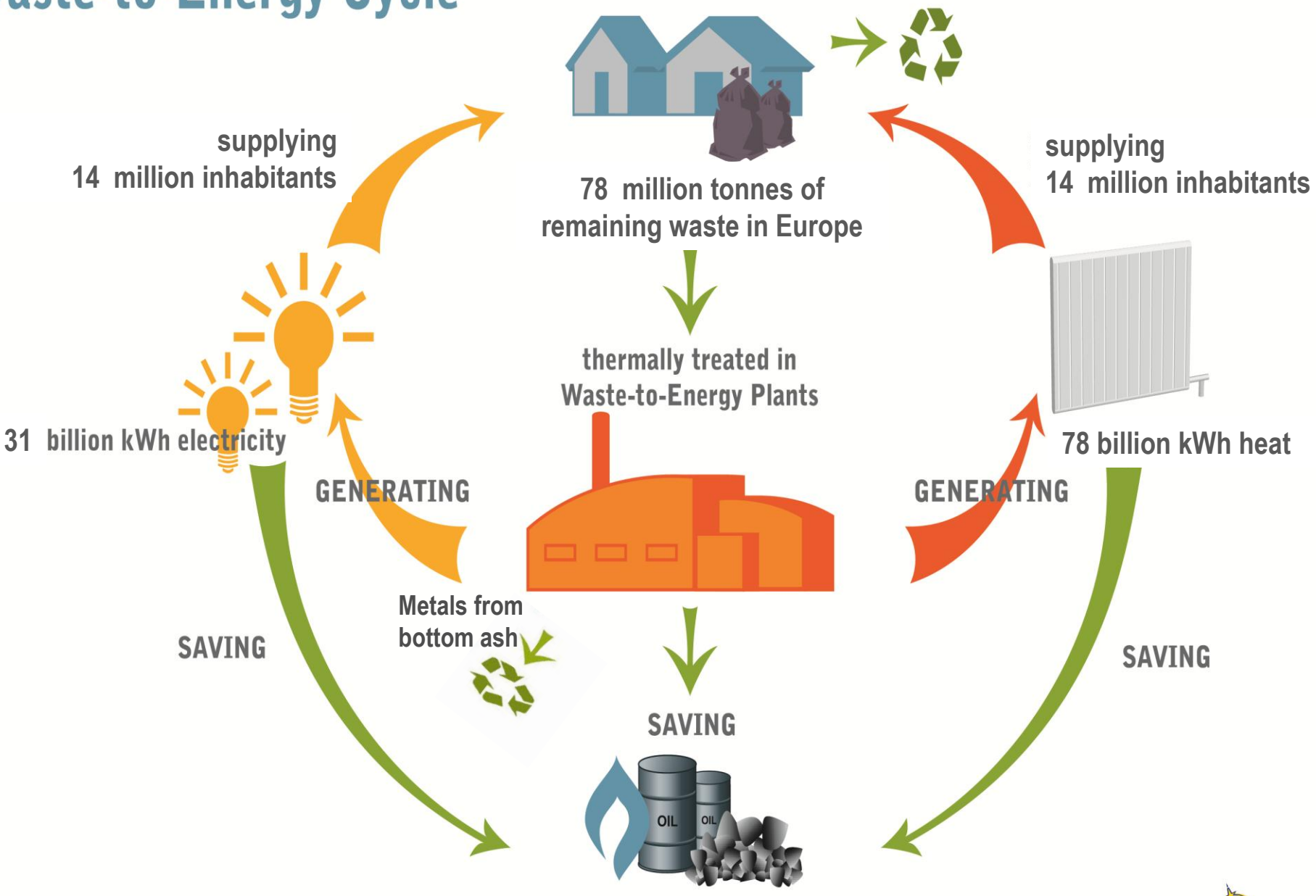
* From Eurostat

** Includes plant in Andorra

CEWEP

info@cewep.eu ▸ www.cewep.eu

Waste-to-Energy Cycle



Year 2011

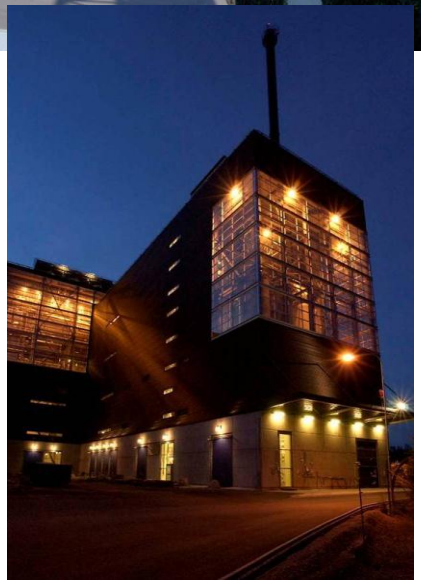
Is it clean and safe?

Waste-to-Energy Plants are equipped with **sophisticated filtering devices** to deal with the pollutants that are in the waste and minimise emissions into the atmosphere.

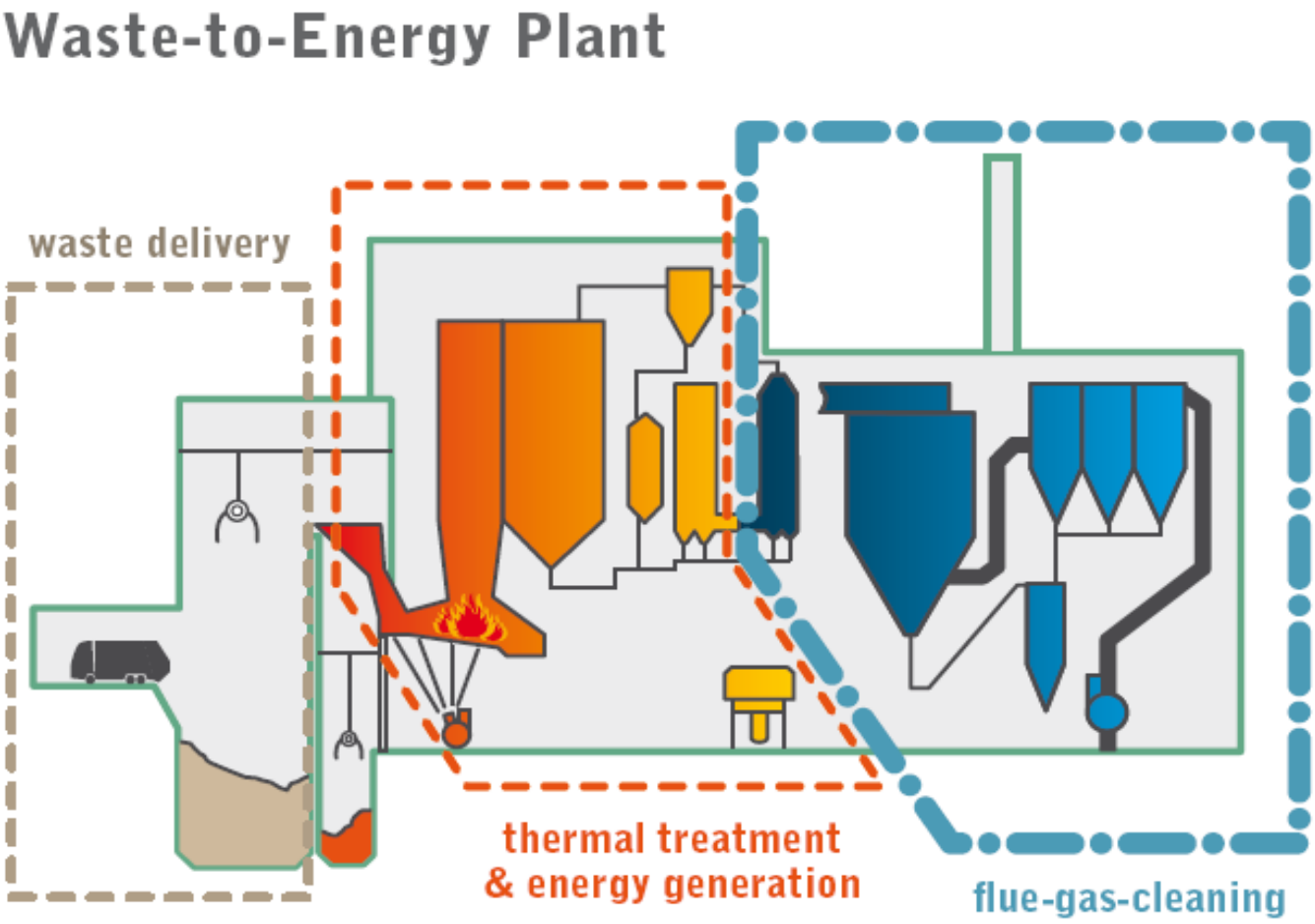
"Directive 2000/76/EC on the incineration of waste makes the incineration of waste one of the most stringently regulated and controlled industrial activities."

Answer given by Mr. Potočnik, Environment Commissioner,
to a Parliamentary Question on 10th June 2010

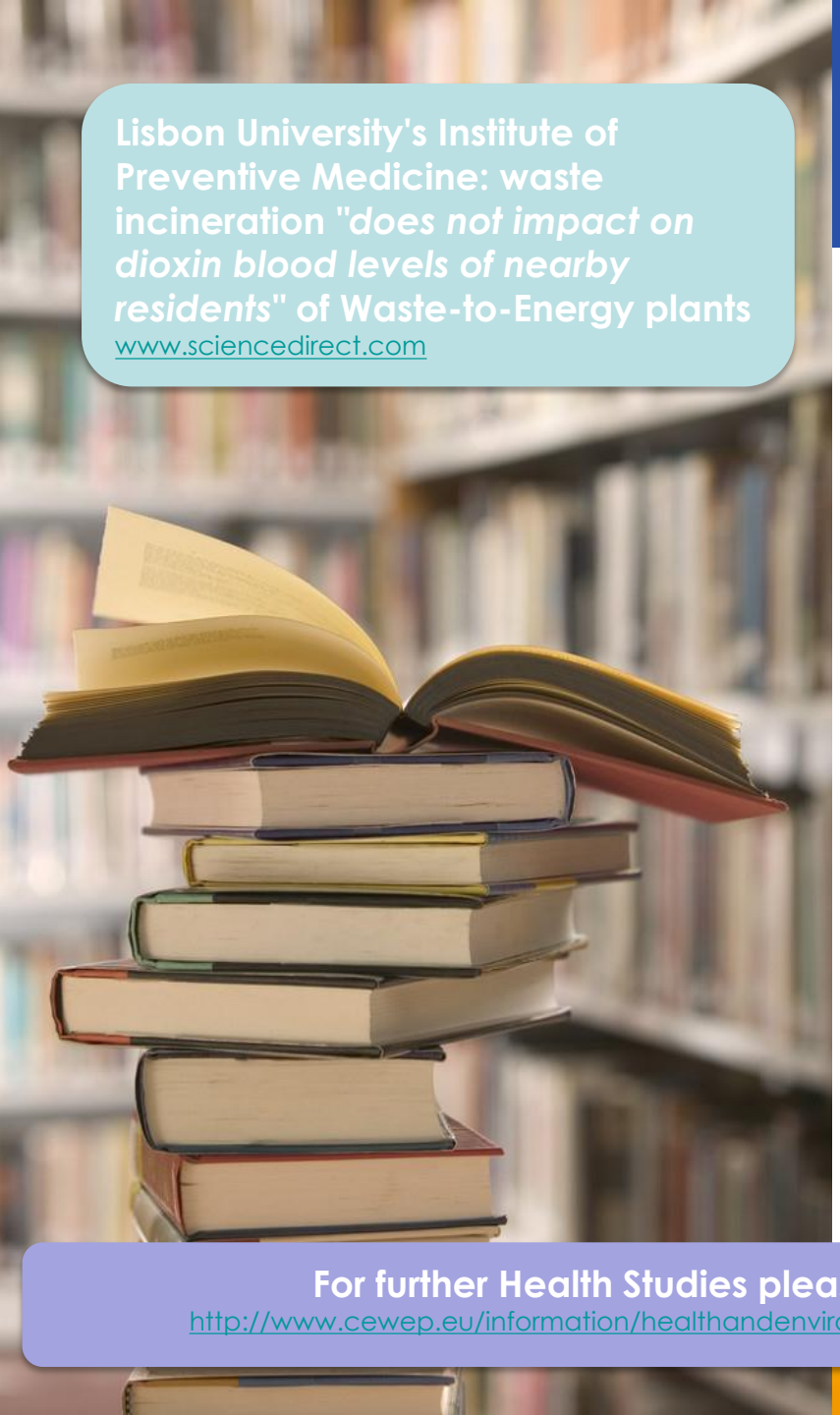
Modern WtE is safe & clean …



Inside a Waste-to-Energy Plant



Health studies



Lisbon University's Institute of Preventive Medicine: waste incineration "*does not impact on dioxin blood levels of nearby residents*" of Waste-to-Energy plants
www.sciencedirect.com

UK Committee of Carcinogenity:
"any potential risk of cancer due to residency near to municipal solid waste incinerators was exceedingly low, and probably not measurable by the most modern epidemiological techniques"
http://www.advisorybodies.doh.gov.uk/Coc/munipwst.htm

A recent Spanish study concluded that the Tarragona Waste-to-Energy plant *"does not produce additional health risks for the population living nearby."*
It presents results from monitoring of the Tarragona (Catalonia, Spain) Waste-to-Energy plant regarding PCDD/Fs levels in soil, vegetation, and air samples collected in the period 2009–2010. The concentrations of PCDD/Fs in the surroundings of the Tarragona plant were monitored over the last 15 years.
http://wmr.sagepub.com/content/30/9/908.full.pdf+html

For further Health Studies please visit
http://www.cewep.eu/information/healthandenvironment/index.html

Waste-to-Energy in integrated waste management

Why is landfill diversion important ?

- to avoid creation of methane - a potent greenhouse gas (25 times CO_2 in mass)→ Landfill emissions are 93% of all GHG emissions from the waste sector[1].
- to harness the energy content of the waste
- to preserve natural resources
- to save space (WtE reduces the volume of waste by 90%)
- to protect soil and groundwater from contamination

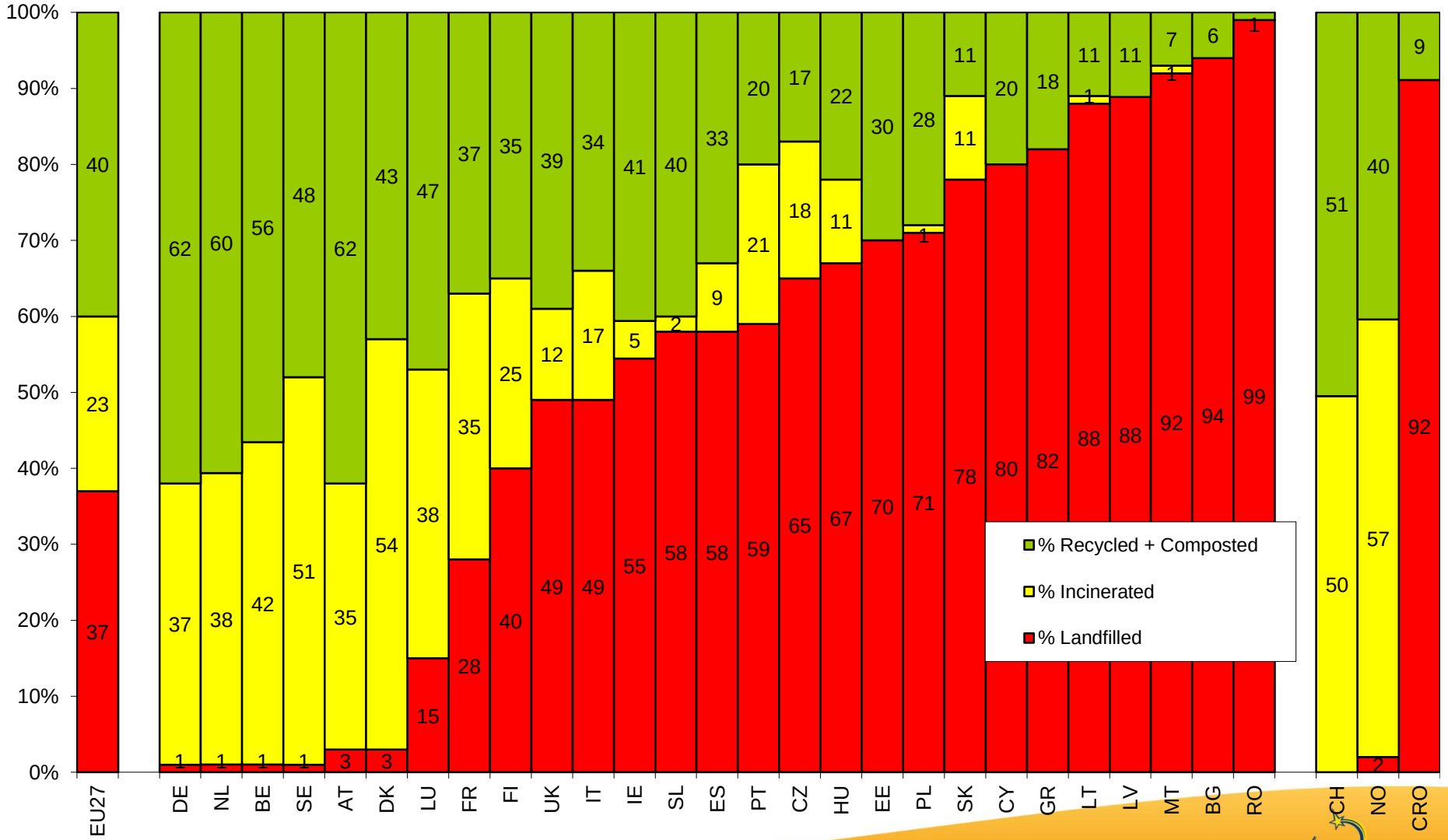
This is why EU targets regarding phasing out landfilling biodegradable waste have been introduced

Recommendation:

- **Introduce Landfill ban for recyclable + combustible waste**

1.http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Greenhouse_gas_emissions_from_waste_disposal

Most successful countries introduced landfill bans and infrastructure for Recycling + WtE



Municipal waste treatment in EU27 + CH+NO+ CRO (2011)
Graph by CEWEP. Source: EUROSTAT

Can't everything be recycled?

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

- Materials too dirty or too contaminated (e.g. vacuum-cleaning bags)
- Mixed materials (too difficult/expensive 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.

It is worth noting that residues from recycling also often need thermal treatment

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

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.

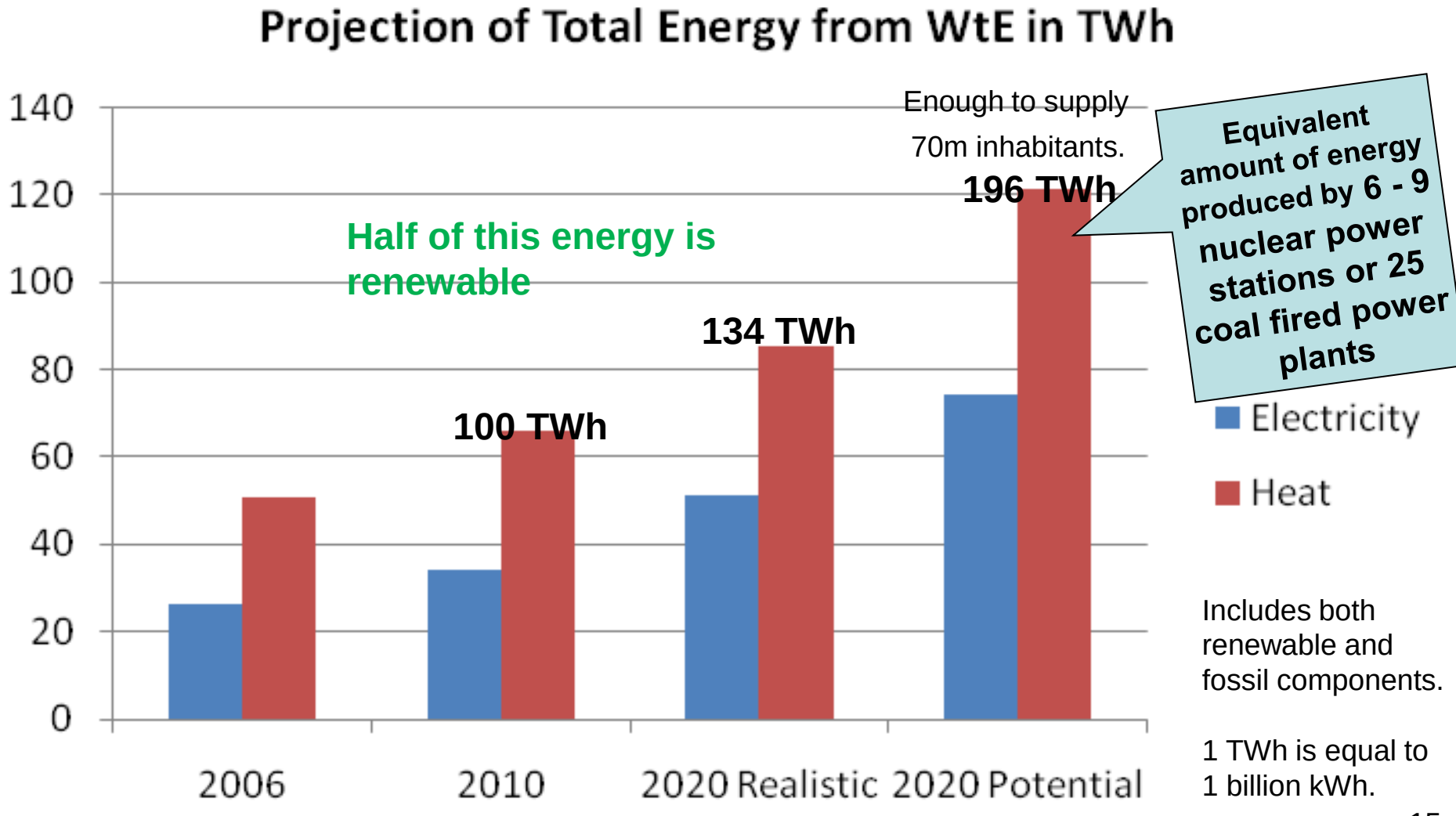
Minerals can be used as secondary aggregates, e.g. in road construction or in building products.

1 tonne of 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.

Using waste that is not suitable for recycling as a sustainable energy source

Sustainable Energy from WtE



Policy recommendations regarding WtE's role in Resource & Energy Efficiency

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

- **Existing EU waste legislation must be 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** in order to explore waste as a resource

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

- Major opportunity to use 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).**
- Future EU Energy Policy should focus more on potentials for heat and cooling.

CEWEP

Heat Coalition –

Aim: fully integrate heating and cooling in the transformation of Europe's energy system

- **Heating and cooling:** 42% of the final energy consumption in the European Union

Exploring Heating & Cooling helps to

- ensure a cost-effective transition towards a low-carbon economy
- security of energy supply by reducing primary energy usage through energy efficiency measures
- enable significant GHG emission reductions through efficient deployment of readily available solutions using renewable or recovered heat that otherwise would be wasted.

EP Report on a 2030 framework for climate and energy policies

- In its report on the Energy roadmap 2050, the EP noted that district **heating and cooling** and readily available renewable energies* incl. biodegradable waste, **have the potential to decarbonise the entire heat demand by 2050 in a more cost effective way, while addressing the problem of energy poverty which in the EU's societies is mainly focused on heat.**

Following the Parliament's support in the past, the Heat Coalition is calling on its Members to reiterate its support in its report on a 2030 framework for climate and energy policies.

* like geothermal, biomass, solar thermal, hydro-/aero-thermal, in combination with energy efficiency measures, incl. CHP and the utilisation of industrial waste heat

From Waste to Local Energy

Waste-to-Energy Plants

de-centralised energy facilities, creating

- *Reliable,*
- *Cost-effective,*
- *Low carbon*
- *Local*

ENERGY

from citizens' waste.

For more information www.cewep.eu