

W_tERT GERMANY

Waste-to-Energy Research and Technology Council

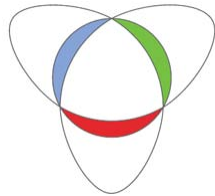
<http://www.wtert.eu>

Introduction to WtERT Germany &
Overview of Waste Management and WtE in the EU-12

M.Sc.-Ing. Emmanuel Serna

WtERT USA Bi-Annual Meeting
New York, NY, USA
08 October 2010

OUTLINE



W_tERT Germany

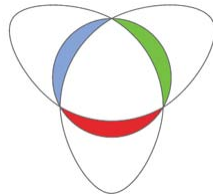


Waste Management
in the EU-12



Status and Trends of EU-12
WtE Plants (Incineration)

OUTLINE



W_tERT Germany

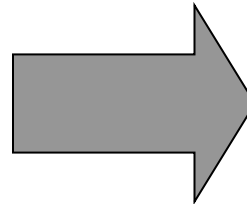


Waste Management
in the EU-12



Status and Trends of EU-12
WtE Plants (Incineration)

ORIGINS

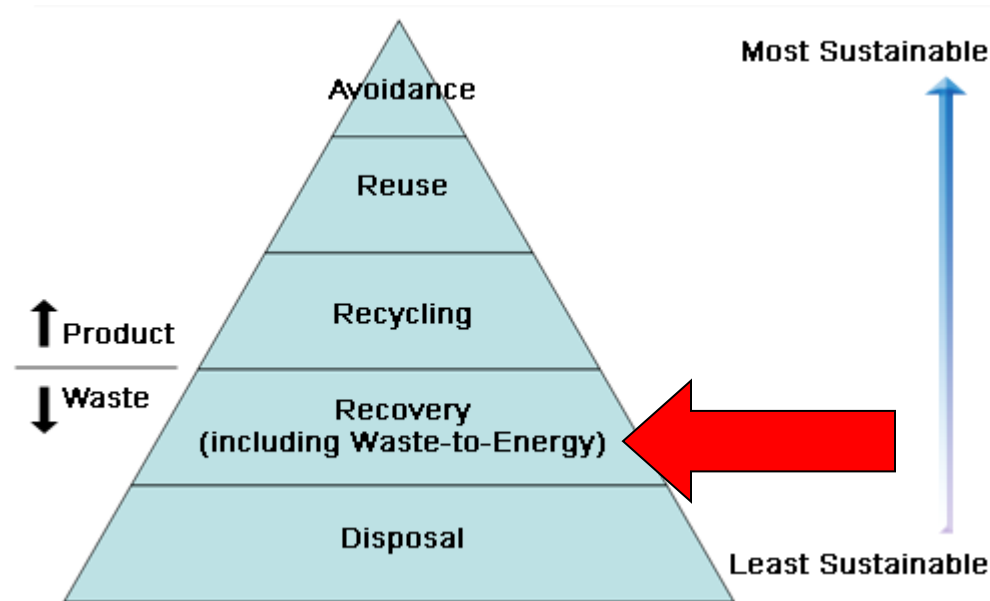


2009

Prof. Martin Faulstich and Prof. Peter Quicker founded W_tERT Germany, the German branch of the council (“wert” in German means “value”)

WASTE DISPOSAL IS HISTORY

Today the accepted objective of every responsible waste economy strategy must be the use of waste as a resource



Five-step waste hierarchy according to EU Directive 2008/98/EC

Avoidance before reuse before recycling before
other recovery (including WtE) before disposal

RESEARCH TOPICS



Thermal Treatment

Recovers the energy, and partly material too, by direct combustion.



Anaerobic Treatment

Recovers the energy and material by fermentating organic wastes to generate biogas.



Landfill Gas Utilization

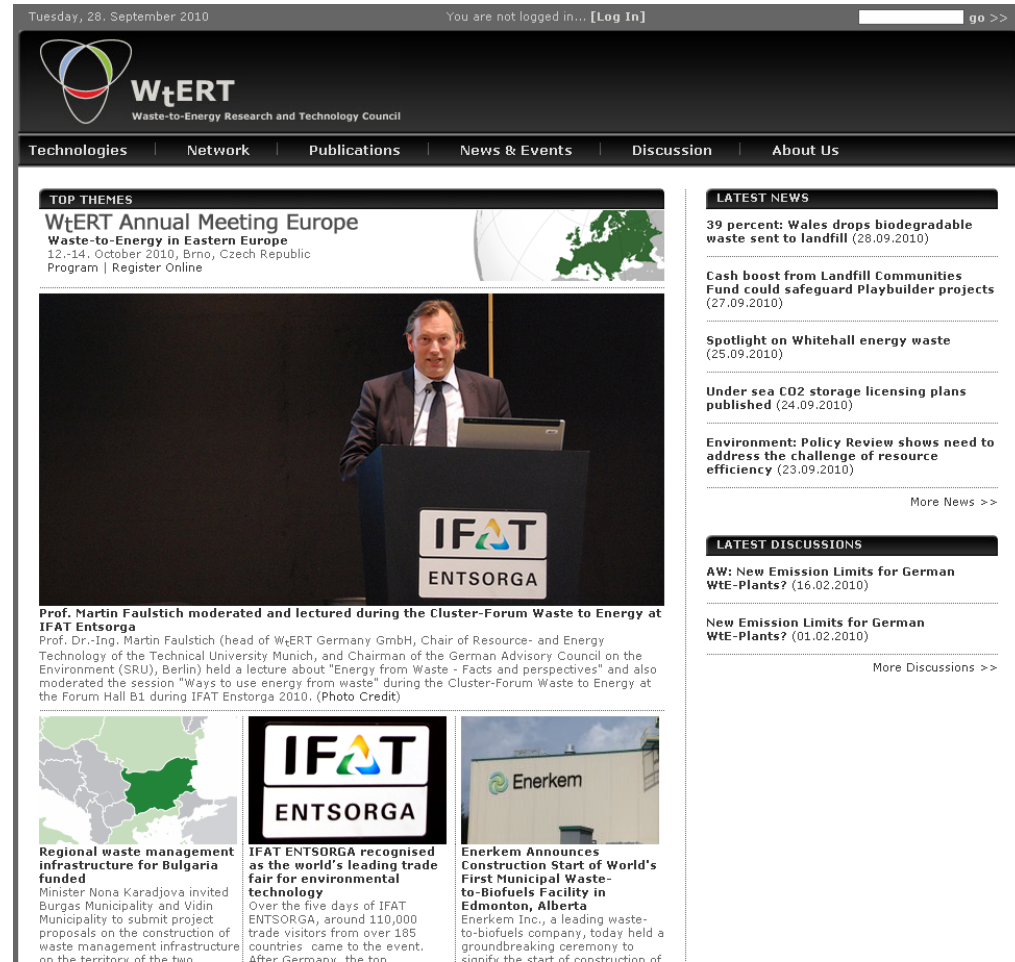
W_tERT Germany is strictly **against** the creation of new landfills, however the methane emitted from current landfills must be used.

NETWORKING

What can you do in our internet portal?

- ▶ Learn more about state-of-the-art WtE technologies
- ▶ Join our list of experts and get in contact with fellow professionals
- ▶ Create new topics or reply to existing ones in our discussion forum
- ▶ Download scientific papers
- ▶ Publish your scientific research
- ▶ Find out what's going on in the WtE-world
- ▶ Know about upcoming events and much more!

www.WtERT.eu



The screenshot shows the WtERT website interface. At the top, there's a navigation bar with links: Technologies, Network, Publications, News & Events, Discussion, and About Us. The main content area features a large article titled "WtERT Annual Meeting Europe" with a photo of Prof. Martin Faulstich at a podium. To the right, there's a "LATEST NEWS" section with three items: "39 percent: Wales drops biodegradable waste sent to landfill", "Cash boost from Landfill Communities Fund could safeguard Playbuilder projects", and "Spotlight on Whitehall energy waste". Below that is a "LATEST DISCUSSIONS" section with two items: "AW: New Emission Limits for German WtE-Plants?" and "New Emission Limits for German WtE-Plants?". At the bottom, there are three smaller articles: "Regional waste management infrastructure for Bulgaria funded", "IFAT ENTSORGA recognised as the world's leading trade fair for environmental technology", and "Enerkem Announces Construction Start of World's First Municipal Waste-to-Biofuels Facility in Edmonton, Alberta".

Tuesday, 28. September 2010 You are not logged in... [Log In] go >>

WtERT
Waste-to-Energy Research and Technology Council

Technologies | Network | Publications | News & Events | Discussion | About Us

TOP THEMES

WtERT Annual Meeting Europe
Waste-to-Energy in Eastern Europe
12.-14. October 2010, Brno, Czech Republic
Program | Register Online

LATEST NEWS

39 percent: Wales drops biodegradable waste sent to landfill (28.09.2010)

Cash boost from Landfill Communities Fund could safeguard Playbuilder projects (27.09.2010)

Spotlight on Whitehall energy waste (25.09.2010)

Under sea CO2 storage licensing plans published (24.09.2010)

Environment: Policy Review shows need to address the challenge of resource efficiency (23.09.2010)

More News >>

LATEST DISCUSSIONS

AW: New Emission Limits for German WtE-Plants? (16.02.2010)

New Emission Limits for German WtE-Plants? (01.02.2010)

More Discussions >>

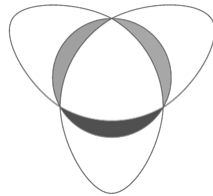
Prof. Martin Faulstich moderated and lectured during the Cluster-Forum Waste to Energy at IFAT EntSORGA
Prof. Dr.-Ing. Martin Faulstich (head of WtERT Germany GmbH, Chair of Resource- and Energy Technology of the Technical University Munich, and Chairman of the German Advisory Council on the Environment (SRU), Berlin) held a lecture about "Energy from Waste - Facts and perspectives" and also moderated the session "Ways to use energy from waste" during the Cluster-Forum Waste to Energy at the Forum Hall B1 during IFAT EntSORGA 2010. (Photo Credit)

Regional waste management infrastructure for Bulgaria funded
Minister Nona Karadjova invited Burgas Municipality and Vidin Municipality to submit project proposals on the construction of waste management infrastructure on the territory of the two.

IFAT ENTSORGA recognised as the world's leading trade fair for environmental technology
Over the five days of IFAT ENTSORGA, around 110,000 trade visitors from over 185 countries came to the event. After Germany, the top

Enerkem Announces Construction Start of World's First Municipal Waste-to-Biofuels Facility in Edmonton, Alberta
Enerkem Inc., a leading waste-to-biofuels company, today held a groundbreaking ceremony to signify the start of construction of

OUTLINE



W_tERT Germany



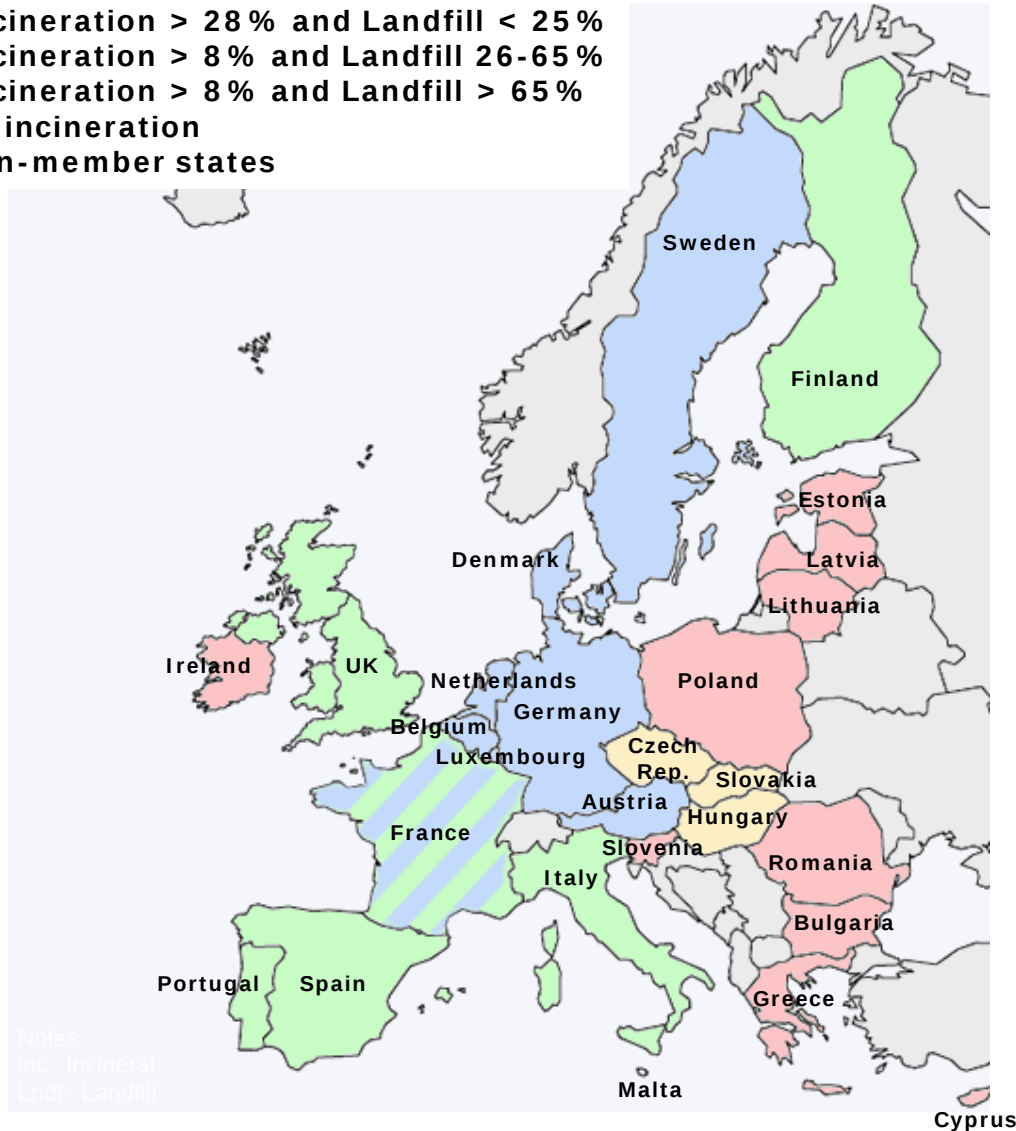
Waste Management
in the EU-12



Status and Trends of EU-12
WtE Plants (Incineration)

NEW EU MEMBER STATES SINCE 2004 “EU-12”

- Incineration > 28 % and Landfill < 25 %
- Incineration > 8 % and Landfill 26-65 %
- Incineration > 8 % and Landfill > 65 %
- no incineration
- non-member states

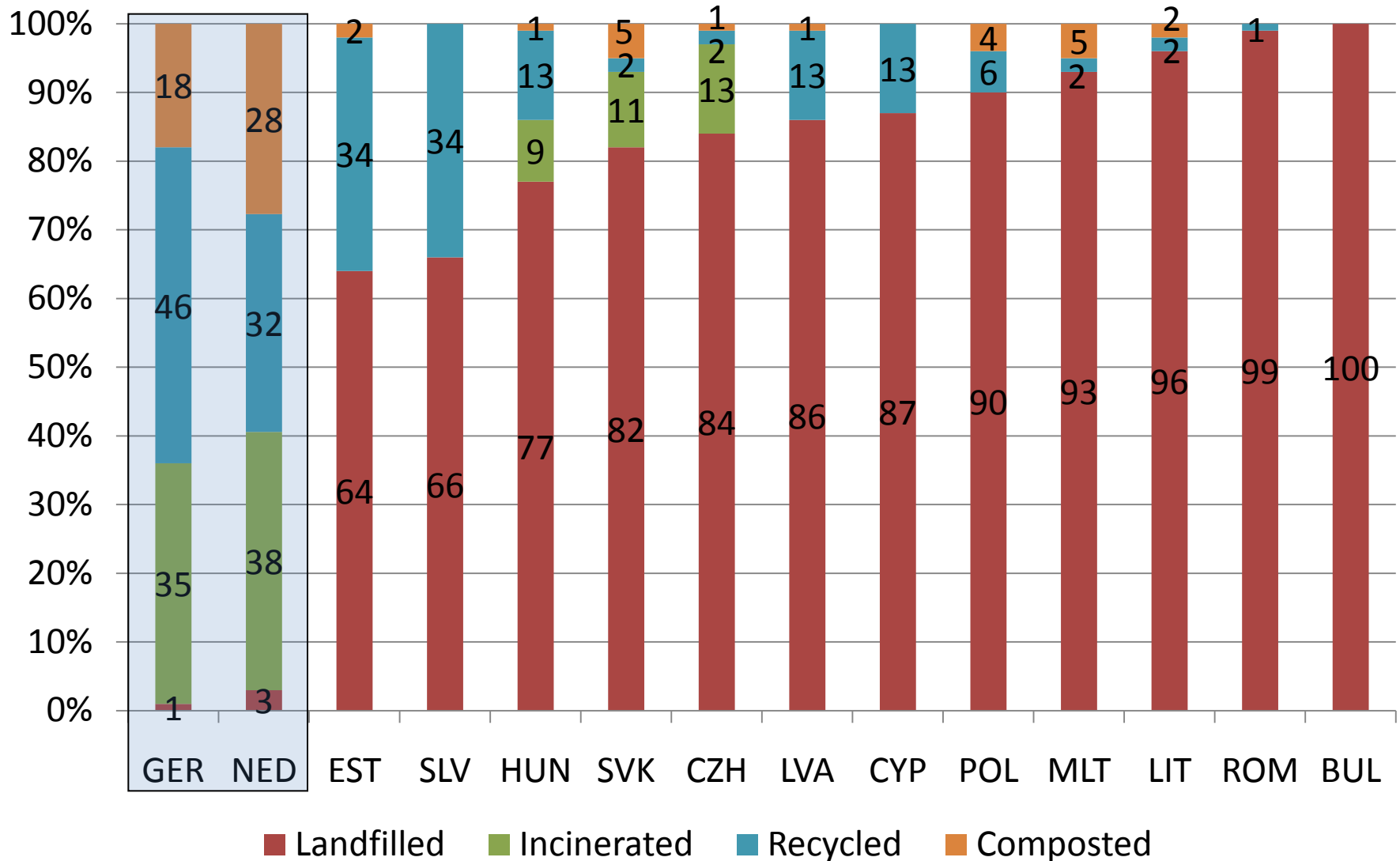


-  Bulgaria *
-  Cyprus
-  Czech Republic
-  Estonia
-  Hungary
-  Latvia
-  Lithuania
-  Malta
-  Poland
-  Slovakia
-  Slovenia
-  Romania *

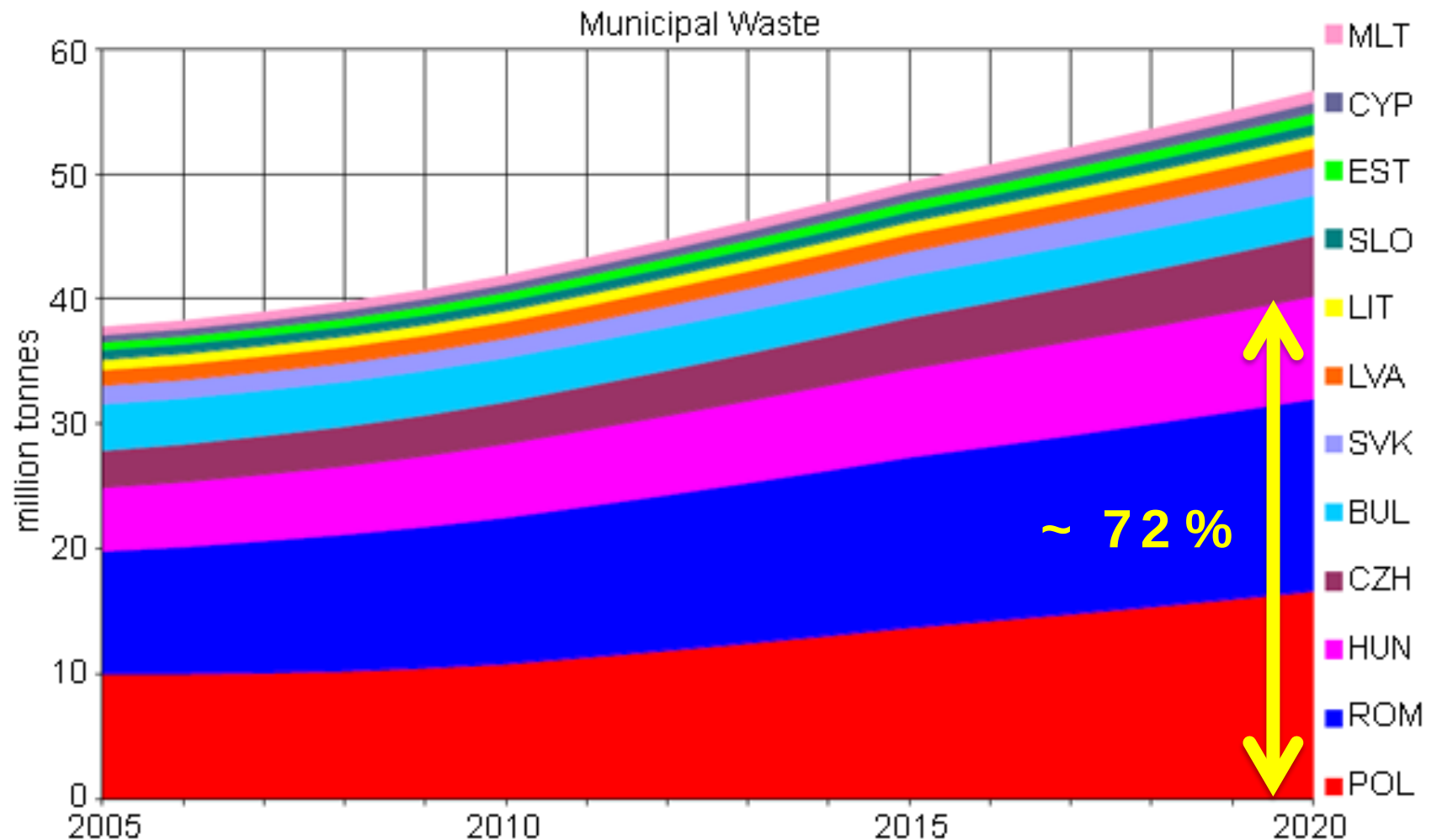
* Joined EU in 2007

WASTE TREATMENT IN 2007

EU-12 v. GERMANY & NETHERLANDS



WASTE GENERATION



Directives (some examples)

2008/98/EC on Waste

- ▶ Regulates and dictates waste management in the EU
- ▶ Protection of the environment and human health
- ▶ Reduction of adverse global impacts
- ▶ 5-Step Waste Hierarchy implemented (Avoidance, Re-use, Recycle, Recovery incl. Waste-to-Energy, Safe Disposal)



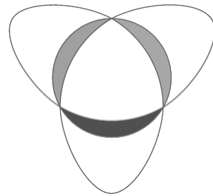
1999/31/EC on the Landfill of Waste

- ▶ Strict requirements for landfill construction
- ▶ Controls type of waste to be landfilled

2000/76/EC on the Incineration of Waste

- ▶ Prevention or reduction of pollution caused by incineration plants
- ▶ Sets emission limits

OUTLINE



W_tERT Germany



Waste Management
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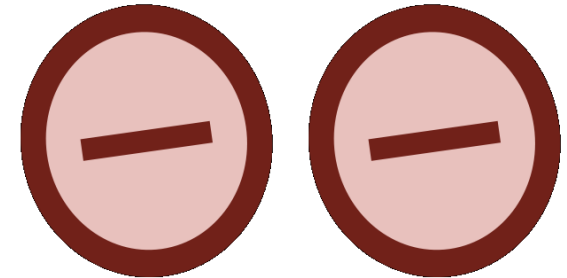


Status and Trends of EU-12
WtE Plants (Incineration)

STATUS AND TRENDS IN EU-12 (1)

Doing very bad...

- ▶ No record of planned WtE projects



Cyprus



Malta

STATUS AND TRENDS IN EU-12 (2)

Going slow...

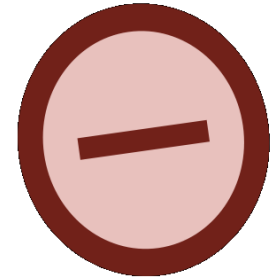
- Some projects planned – but still in early stage of development



Bulgaria



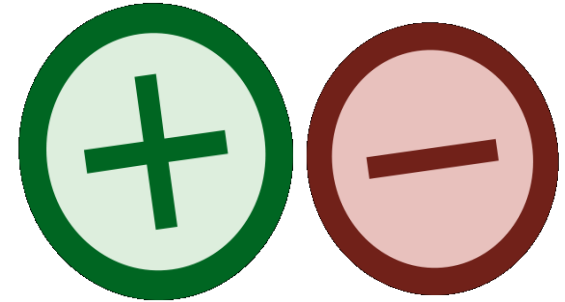
Latvia



STATUS AND TRENDS IN EU-12 (3)

Moving in the right direction... (1)

- ▶ Current capacity is very limited or null
- ▶ Expansion projects already in construction or under development



Estonia

- ▶ Tallinn WtE Plant Project has been awarded
- ▶ One extra project is in early stage of development



Lithuania

- ▶ Construction Permit: Klaipeda WtE Plant (150 k Mg/a)
- ▶ Planned: Vilnius WtE Plant (250 k Mg/a)
- ▶ Feasibility studies: Kaunas, Siauliai, Panevezys and other municipalities



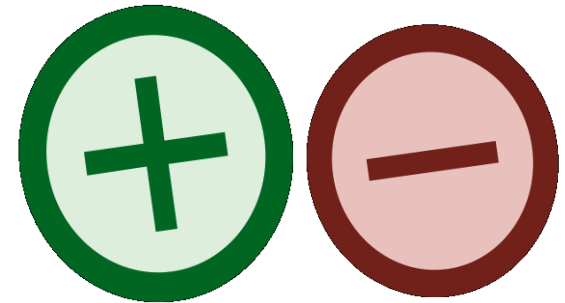
Slovenia

- ▶ 1 Active WtE Plant: Celje Heating Plant (25 k Mg/a)
- ▶ Under development: Ljubljana WtE Plant (60 k Mg/a), completion 2015
- ▶ Maribor WtE Plant is in early stage of development

STATUS AND TRENDS IN EU-12 (4)

Moving in the right direction... (2)

- ▶ Current capacity is very limited or null
- ▶ Expansion projects already in construction or under development



Poland

- ▶ 1 Active Plant: Zusok WtE Plant in Warsaw (40 k Mg/a)
- ▶ 11 WtE Plants under development (2.3 mil. Mg/a)
Lodz, Krakow, Warsaw, Bialystok, Gdansk, GZM Katowice, Poznan, Szczecin, Bydgoszcz & Torun, Olsztyn, Koszalin



Romania

- ▶ Feasibility studies: Timisoara (150 k Mg/a), Bucharest (750 k Mg/a) and Brasov (150,000 t/a)
- ▶ Early stage of development: Region 1 North-East WtE Plant (300 k Mg/a)

STATUS AND TRENDS IN EU-12 (5)

Doing fair...

- ▶ Installed capacity is fair
- ▶ Expansion projects are under development



Czech Republic

- ▶ 4 Active WtE Plants (410 k Mg/a)
Plants: Pražské služby, SAKO Brno, Termizo, Sdružení STEO
- ▶ National legislation has recently changed, allowing new waste incineration plants to be build in the near future



Hungary

- ▶ 1 Active WtE Plant: FKF Budapest (400 k Mg/a)



Slovakia

- ▶ 2 Active Plants (200 k Mg/a) – co-incineration included

WtE IN 2010

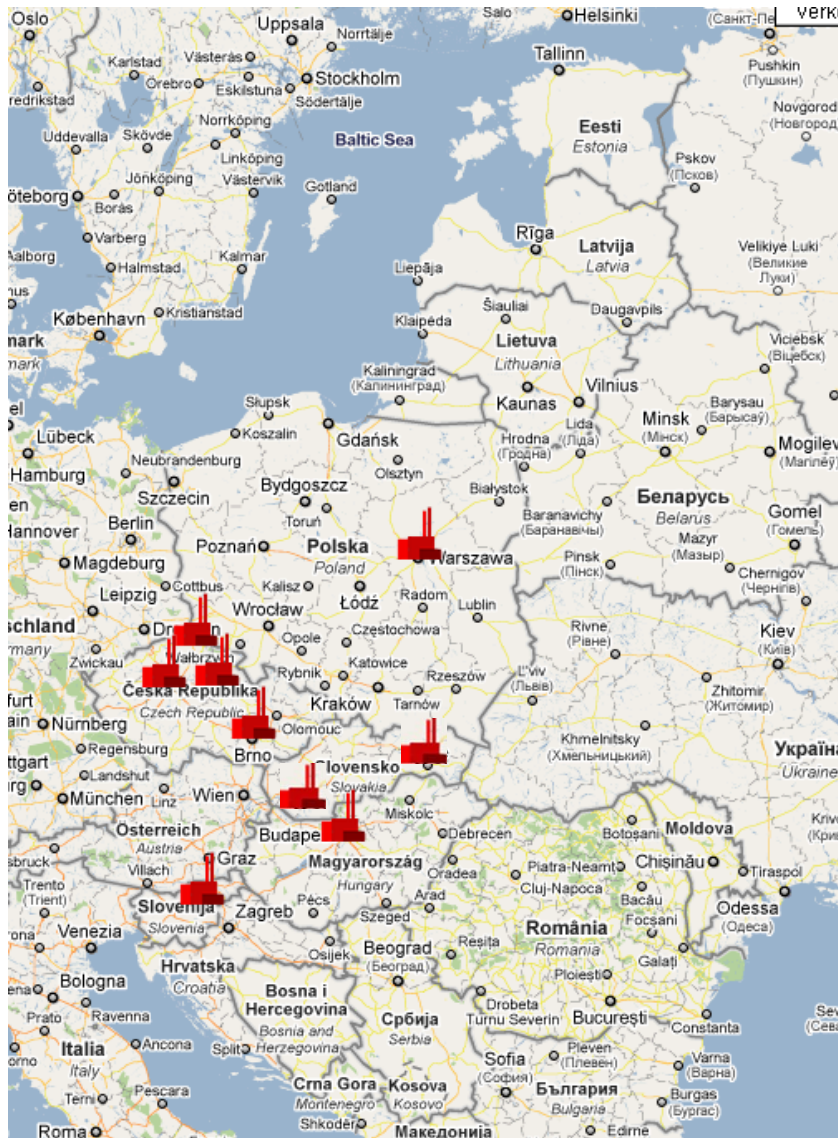


Image: Google Maps

Existing Facilities

- Brno
- Praha 1, Praha 2
- Liberec
- Celje
- Budapest
- Warsaw 1
- Slovakia 1, Slovakia 2

9 WtE Plants
1 mill. Mg / a

WtE IN 2015?



Image: Google Maps

Existing Facilities

- Brno
- Praha 1, Praha 2
- Liberec
- Celje
- Budapest
- Warsaw 1
- Slovakia 1, Slovakia 2

9 WtE Plants
1 mill. Mg / a

To be constructed

- Tallin
- Vilnius
- Klaipeda
- Kaunas
- Lodz
- Warsaw 2
- Bialystok
- Gdansk
- Katowice
- Poznan
- Szczecin
- Bydgoszcz & Torun
- Olsztyn
- Koszalin
- Ljubljana
- Maribor
- Timisoara
- Brasov
- Bucharest
- North-East Romania

20 WtE Plants
4.2 mill. Mg / a

INTERESTED IN LEARNING MORE ABOUT W_tE IN EASTERN EUROPE?



W_tERT Annual Meeting Europe

When?

12-14 October 2010

Where?

Brno, Czech Republic

Topics?

- Waste Management in Eastern Europe
- Politics, Society and Law
- Technology: Status and Developments
- and more



Image: Melinda van den Brink

Programme available in our website

<http://www.wtert.eu>

**THANK YOU
FOR YOUR ATTENTION!**

Please join our WtE Network Today!
<http://www.wtert.eu>