Confederation of European Waste-to-Energy Plants

Overview of legislative changes in the EU that influence the future design and performance of WtE plants

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Dr. Ella Stengler
CEWEP Managing Director

EU legislation in the pipe-line

- **Implementation of the Waste Framework Directive (WFD)**
  - **R1 guidance**
  - **Waste hierarchy based on Life Cycle Assessment (LCA)**
  - **Monitoring recycling targets**
- **European list of waste**
- **Bio-waste**
- **Industrial Emissions Directive**
- **NO_X and SO_2 trading**
- **Climate Package, particularly Directive on Renewable Energy Sources and sustainability criteria for biomass other than biofuels and bioliquids**

Energy recovery status for WtE

Waste Framework Directive (WFD), Art. 3 (15):
'recovery' means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.
Annex II sets out a non-exhaustive list of recovery operations;

R 1 'Use principally as a fuel or other means to generate energy'
This includes incineration facilities dedicated to the processing of municipal solid waste only where their energy efficiency is equal to or above:

0.60 for plants permitted before 1.1.2009
0.65 for plants permitted after 31.12.2008

R1 formula

$$\text{R1-factor} = \frac{Ep - (Ef + Ei)}{0.97 * (Ew + Ef)}$$

- **Ep** means annual energy produced as heat or electricity.

Energy produced, not energy exported
-> energy for self demand is also produced!

- ... incineration facilities dedicated to the processing of **municipal solid waste**

= household waste and similar commercial, industrial and institutional waste

-> Formula does not apply to hazardous waste incinerators, nor to co-incinerators; probably also not to RDF plants

Energy Efficiency mandatory

However…

‘It shall be a condition of any permit covering incineration or co-incineration with energy recovery that the recovery of energy take place with a high level of energy efficiency’.

Art. 23(4) WFD

Implementation of the WFD

Guidance for the application of the R1 formula *(*Art. 38)

ITAD together with German Environment Ministry and Environment Agency drafted guideline on R1, made proposal on a European level – supported by CEWEP.

Implementation of the WFD

R1 formula

Experts meeting on 25th June 2009 in DG Environment;

MS + Experts

COM questionnaire: Comments currently evaluated by BiPRO consultancy.

Next experts meeting probably in March 2010.

Active parties: Austria, Belgium (OVAM), Germany, France, Portugal (MS); CEWEP, ESWET; FEAD (industry)

R1 formula

for climate correction factor ‘comitology’ necessary

Portugal asked for this, supported by France.

Implementation of the WFD

Monitoring Recycling targets

Before the end of 2010, the Commission plans to take a decision on calculation rules related to the recycling targets. Eurostat statistics will be used as far as possible.

CEWEP: Metals/Bottom Ash recycling from WtE plants should also count towards recycling targets.

Implementation of the WFD

The Commission prepares guidelines on **Life Cycle Thinking** and the waste hierarchy

Giving examples based on the work carried out by the JRC

European list of waste

Ökopol finished a report on the review of the European list of waste and the “executive summary” (532 pages) was published on the website of DG Environment http://ec.europa.eu/environment/waste/pdf/low_review_oekopol.pdf

The list of waste will be linked closer to chemical legislation. Some H(azardous) criteria have to be specified, e.g. H14 (ecotox).

H14 is the most relevant for the classification of bottom ash as hazardous or non hazardous waste.

Bio-waste

Commission's Green paper on the management of bio-waste (public consultation, deadline was 15.3.2009).

Conference in Brussels on 9 - 10 June 2009, organized by the Commission, OVAM (Belgium), the German Ministry of Environment and the Czech Presidency -> those Member States pushing for a EU Bio-waste directive. Also Spanish EU Presidency.

COM initiated an **Impact Assessment for a possible bio-waste directive**. Undertaken by ARCADIS + EUNOMIA. Based on this COM will make its own Impact assessment.

Parliament discusses currently COM Green paper.

Do we need a bio-waste directive/mandatory targets for source separation and recycling? CEWEP position: Source separation +, clean waste for composting (high quality criteria necessary), however remaining waste should be turned to energy. No 'one size fits all' approach!

Directive on Industrial Emissions

COM proposal from 21st December 2007

merges **IPPC Directive** 96/61/EC with, inter alia,

- **Waste Incineration Directive** 2000/76/EC and
- Large Combustion Plants Directive 2001/80/EC.

The following additional waste treatment activities are, inter alia, added to the Scope (Annex I):

- Pre-treatment of waste for (*incineration and*) co-incineration
- Treatment of slags and ashes

COM aims to

- strengthen the concept of BAT (Best Available Techniques); making the BREFs (BAT REFerence documents) more “prominent”

- Problem: Emission Limit Values must not be mixed up with BAT AEL (Associated Emission Levels) mentioned in the BREFs (Chapter 5, ranges)

Article 16 (2) - Commission

The competent authority shall set emission limit values that do not exceed the emission levels associated with the best available techniques as described in the BAT reference documents.

	WI – BREF 2006 : BATAELs			WID – 2000 : ELVs		
mg/m³ (except dioxins/furans: ng ITEQ/m³)	Non-continuous	½ hour average	24 hour average	Non-continuous	½ hour average	24 hour average
Dust		1 – 20	1 – 5		30	10
HCl		1 – 50	1 – 8		60	10
HF		< 2	< 1		4	1
SO_2		1 – 150	1 – 40		200	50
NOx (SCR)		40 – 300	40 – 100		400	200*
NOx (SNCR)		30 – 350	120 – 180		400	200*
VOC		1 – 20	1 – 10		20	10
CO		5 – 100	5 – 30		100**	50
Hg	0,05*	0,001 – 0,03	0,001 – 0,02	0,05	-	-
Cd + Tl	0,005 – 0,05			0,05		
Σ and other metals	0,005 – 0,5			0,05		
Dioxins+Furans	0,01 – 0,1			0,1		
NH_3	< 10	1 – 10	< 10 *	-	-	-
Benzapyrene PCBs, HAPs, N_2O	See chapter 3 information about control techniques			-	-	-

BATAELS ≠ ELVs

The BAT reference documents all state in the preface that

“this document does not propose emission limit values”

Compliance with the emission limit values set in permits naturally results in operational levels *below* those emission limit values.

IED, Emission LIMIT Values

Art. 15 (3) **Council** (15 February 2010):

The competent authority shall set emission limit values that ensure that, **under normal operating conditions**, emissions do not exceed the emission levels associated with the best available techniques as laid down in the decisions on BAT conclusions referred to in Article 13(5) through either of the following:

IED, Emission LIMIT Values

(a) (= COM original proposal)
setting emission limit values that do not exceed the emission levels associated with the best available techniques. Those emission limit values shall be expressed for the same or shorter periods of time and under the same reference conditions as those emission levels associated with the best available techniques; or

IED, Emission LIMIT Values

(b) setting different emission limit values than those referred to under point (a) in terms of values, periods of time and reference conditions.

Where point (b) is applied, the competent authority shall, at least annually, assess the results of emission monitoring in order to ensure that emissions under normal operating conditions have not exceeded the emission levels associated with the best available techniques.

Seville process

-> BAT conclusions, incl. Associated Emission Levels, will become legally binding (and translated in all EU languages)

- Opinion of the forum to be *taken into account;* comprises MS, industries concerned and non-governmental organisations
- However, decision made by COM, with participation of the Member States. Participation of EP depends on BAT conclusions decided in 'delegated' acts or 'implementing' acts (in the latter, EP has restricted power)

-> The IED will change the 'Seville process' significantly as it will become more political !

IED, Council 15 February 2010

Competent authorities would have 5 years to reconsider permits *(instead of 4)* after publication of a decision on BAT conclusions.

Are the current BREFs still valid?

Current BREFs have been drafted under the assumption (and confirmation) of the Commission that BATAELs are NOT ELVs.

In the meantime, the Council foresees, that the current BATAELs of the BREFs (incl. BREF WI from 2006) are not valid for setting ELVs according to Art. 15(3) IED.

Time table

Commission Proposal
21st December 2007

European Parliament Plenary vote
10th March 2009

Council political position: June 2009

Formal adoption of Council's Common position: 15 February 2010
Reason for delay: Lisbon treaty entered force on 1 December 2009
-> change of comitology

IED, Second Reading - EP

Time schedule:

- Examination of Rapporteur Holger Krahmer's (German Liberals) draft report in ENVI Committee: 15 March 2010
- Deadline for amendments: 18 March 2010
- Vote in ENVI Committee 7 April 2010
- EP Plenary: 18 May 2010

Work programme for the EIPPC Bureau

- In 2011: review of **BREF Waste Treatment** (inter alia bottom ash, stabilisation processes)

- The review of the **BREF Waste Incineration** (adopted 2006) is indicated for the period 2012-2014

- Monitoring BREF for review in 2010

  provides information regarding monitoring requirements of industrial emissions at source. Issues tackled are as follows:
  - Appropriate monitoring regime;
  - The way the ELV's, or equivalent parameters, are expressed;
  - Monitoring timing considerations;
  - How to deal with uncertainties;
  - Monitoring requirements to be included with ELVs in permits;
  - Approaches to monitoring;
  - Approaches to monitoring a parameter; monitoring costs.

Emissions trading for NOx and SO_2

ENTEC (UK) consultancy carried out a study on an emissions trading system for NOx and SO_2 on behalf of DG Environment.

A future NOx and SO_2 trading scheme would replace Emission Limit Values and BATAELs.

Strong opposition against emissions trading for NOx and SO_2 , particularly from industry.

Climate Package
Emissions Trading Directive

Municipal and hazardous waste installations are still excluded from the scope. The Greens who tried to delete this exclusion, were, fortunately, not successful. So, at least for the next trading period (until 2020) municipal and hazardous waste installations are out of the scope of Emissions Trading.

Climate Package
Directive on Renewables

The biodegradable fraction of industrial and municipal waste is part of the biomass definition, thus counts as a renewable energy source.

The RES Directive came into force 25th June 2009 and has to be implemented by 5th December 2010.

Directive on Renewables

Sustainability criteria for biomass

According to Article17(9) of the Renewable Energy Directive the Commission shall report on requirements for a sustainability scheme for energy uses of biomass, other than biofuels and bioliquids, by 31 December 2009 at the latest.

CEWEP position: Sustainability criteria for (municipal) waste biomass not necessary. Waste is already densely regulated.

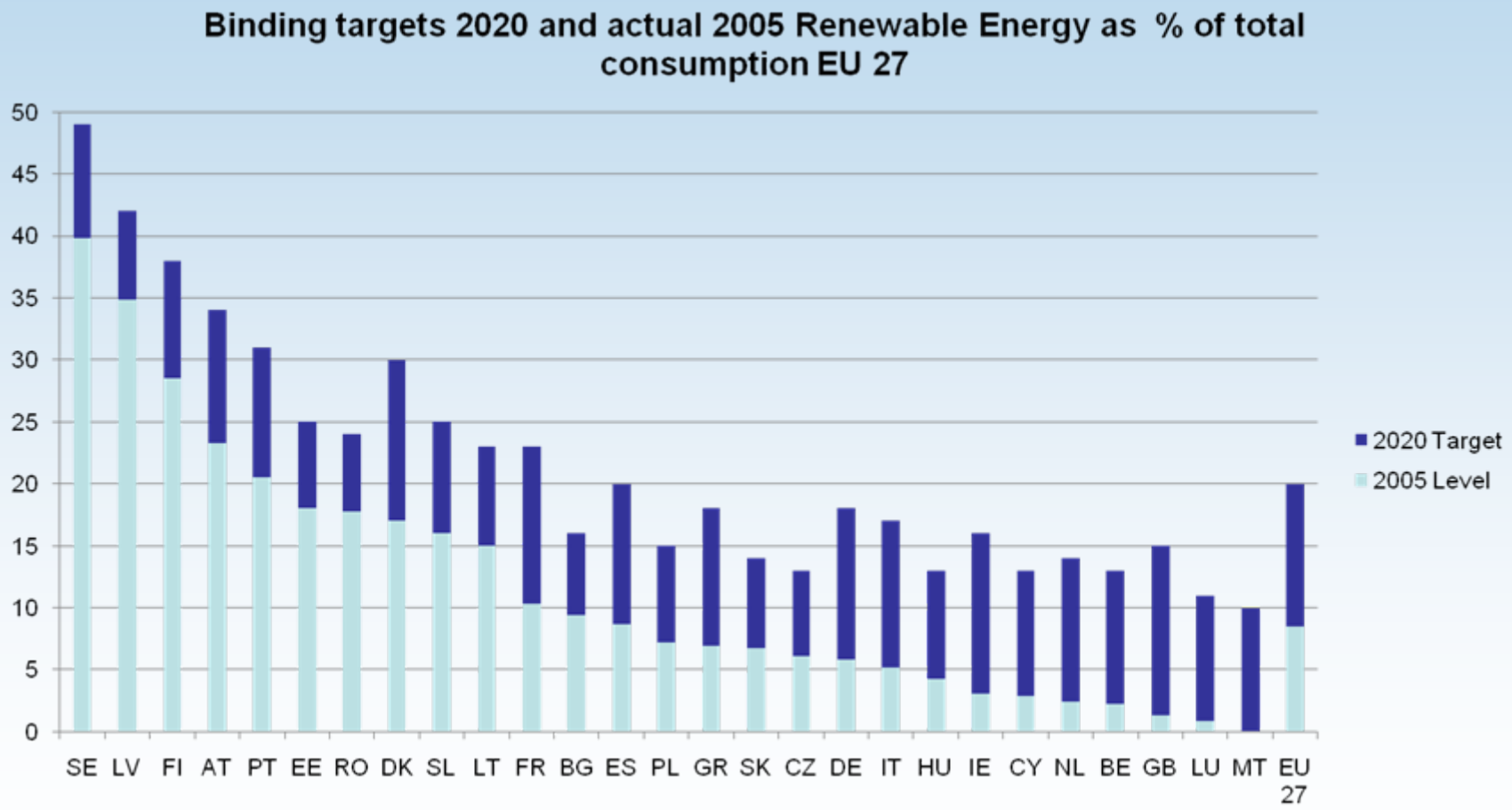
Report to COM

Member States shall report to COM by 31 Dec 2011, inter alia, how the share of biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates.

Art. 22 RES-Directive

Mainly, assumption that 50% of energy generated from municipal waste is renewable (differs from MS to MS)

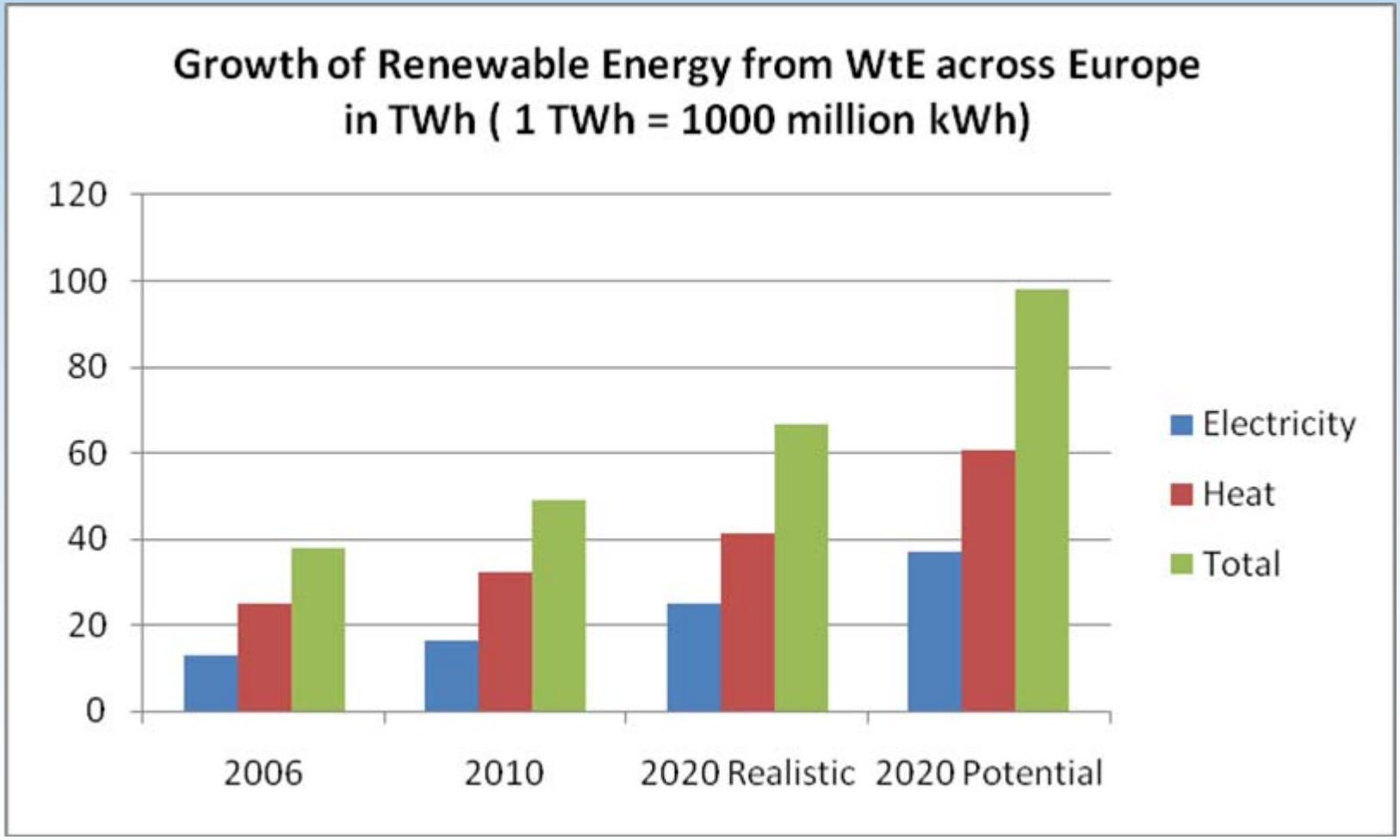
EU 27 targets for Renewable Energy overall 20 % of consumption by 2020



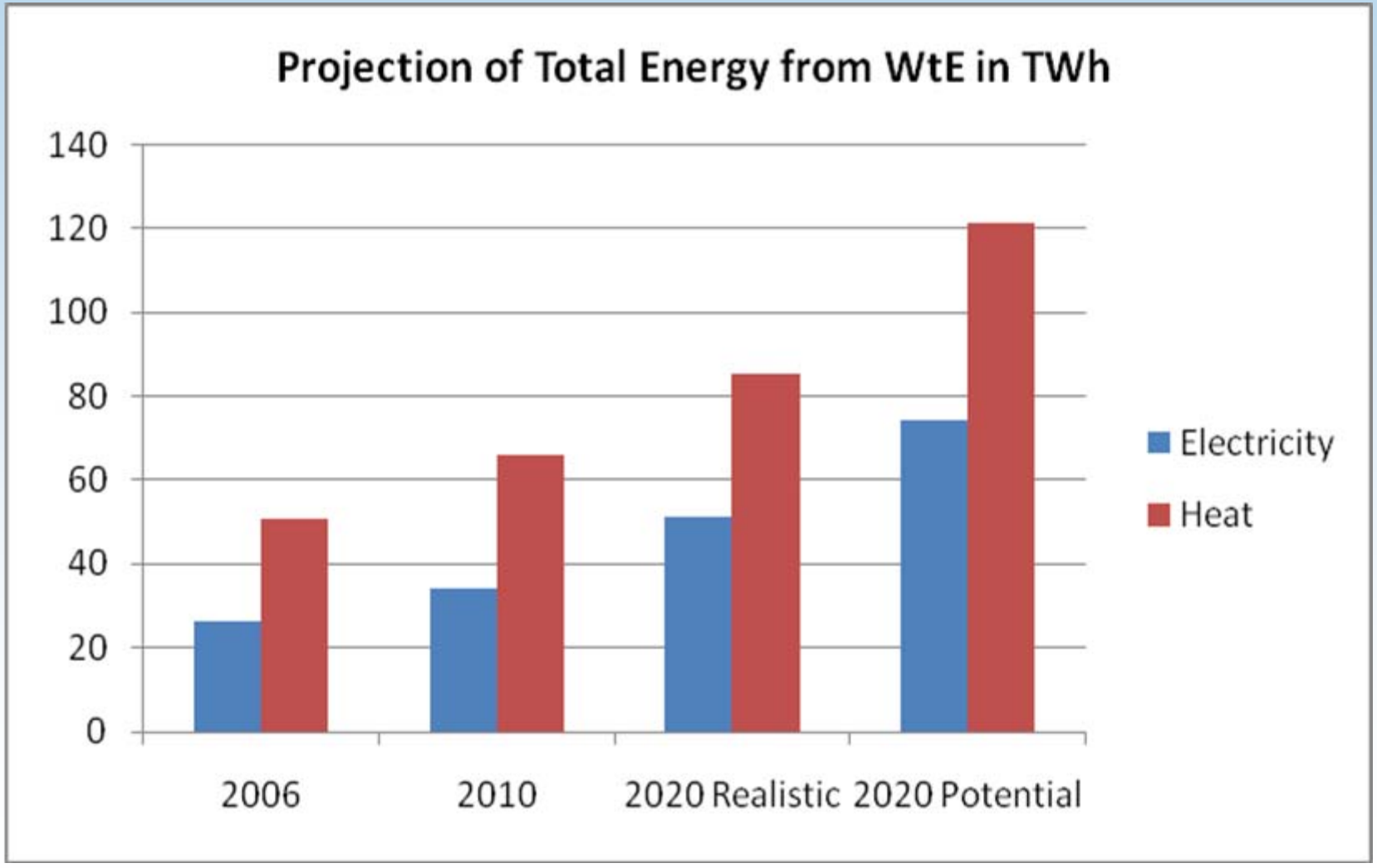
The gap to close is about 1500 TWh of Renewable Energy

(at a flat – zero growth - EU energy consumption level of 13700 TWh)

Renewable Energy from WtE



The Total Energy Output projection for WtE



Includes both renewable and fossil components.

WtE Energy output assumptions

Average energy output data per tonne of waste treated (for portfolio of existing and new plants)

	2006	2010	2020 Realistic	2020 Potential
Electricity production kWh/t waste	**400**	**450**	**500**	**550**
Heat supply kWh/t waste	**760**	**850**	**820**	**900** Exploitation of **heat potential**

Total energy output (renewable & fossil)

Share of renewable Energy from WtE as a % of total renewable energy for selected countries

Assumption: that countries will achieve their binding target for renewable energy by 2020.

Country	2006	2020
NL	14,3	4,4
BE	13,3	2,5
DK	12,5	6,3
DE	7,5	3,0
CZ	3,9	3,3
SE	3,7	4,7
UK	3,6	1,8

Decline of % contributed by WtE is because total renewable energy per country must grow much faster in order to meet the target.

Policies to foster Energy Efficiency

- Incentives to **maximize electricity production** from waste.
- **Electricity grid access** - Waste-to-Energy plants should not be put at a disadvantage in comparison to other renewable energy sources.
- **Improving infrastructure for district heating and cooling**

Recommendations for maximisation of Renewable Energy from Waste across Europe

EU Policy Level

- Promote classification as Renewable by all MS
- Promote that MS set up support schemes
- Speed up R1 status of WtE plants (energy efficiency)

National Level

- Learn from successful examples elsewhere
  e.g. SE, DK, DE, NL, Flanders (Belgium)
- Make RE from waste a key element in National Waste Mgt Plans, in particular for new Member States
- Set up (modest) support schemes for RE from waste to overcome the hurdles

For more information on Waste-to-Energy:

CEWEP
Confederation of
European Waste-to-Energy Plants
Boulevard Clovis 12A,
B-1000 Brussels

Tel. +32 2 770 63 11
Fax +32 2 770 68 14

info@cewep.eu
www.cewep.eu