



European Commission
JRC - Institute for Energy
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Contents of Presentation

- Outline of EU Policies & Targets Related to Renewable Energy
- Policy and Legislative Activities
- Useful Contact Details and References



EU Policies and Targets: Energy (1)

- **RES White paper 1997:** increase share of RES from 6% to 12% of gross consumption by 2010 (~ 6% in 2001, of which 2/3 is from biomass/waste - mainly heat: EU15 expected to reach 10% by 2010)
- **To reduce greenhouse gas emissions**
(meet the commitments made by the EU under the 1997 Kyoto Protocol)
- **To contribute to Security of Supply**
[COM(2000)769 – C5-0145/2001]



EU Policies and Targets: Energy (2)

- **Directive 2001/77/EC of 27.09.01 on RES-e** : to establish a framework to increase the share of green electricity from 14% to 21% of gross electricity consumption by 2010 (expected to reach 18-19% by 2010)
- **Directive 2003/30/EC of 08.05.2003 on the promotion of biofuels for transport**: targets: 2% by 2005; 5.75% by 2010
- **Directive 2004/8/EC on cogeneration of heat and power**: target: 18% by 2010
- **Directive on renewable heat**; under preparation in 2006



EU Policies and Targets: Energy (3)

- **Integrated Pollution Prevention and Control (96/61/EC):** special provision for RES
- **Directive establishing a scheme for greenhouse gas emission allowance trading (2003/87/EC):** with an amendment to 96/61/EC
- **Directive on nitrates (91/676/EEC):** reduction of disposal of animal slurries on agricultural land
- **EC Animal By-products Regulation (1774/2002):** health rules concerning animal by-products not intended for human consumption



EU Policies and Targets: Biogas

There is no particular policy on biogas, it is a component of the general bioenergy "cocktail" ...so it is covered by all policies related to RES and bioenergy (see later comments for Biomass Action Plan)

Landfill gas is covered by the policies on waste management but its applications falls under the energy policies.



Policy and Legislative Activities



- **Best Available Techniques (BREFs – within frame of Directive on Integrated Pollution Prevention and Control - 96/61/EC)**
- **Well-to-Wheels Study**
- **Biomass Action Plan**
- **European Climate Change Programme II**
- **Manure Processing Conference: DG ENV**



Best Available REFerence Techniques (BREFs)

- Energy Efficiency (started May 2005, expected to take 1 year to prepare final draft for presentation to DG ENV)

Called a “horizontal” BREF – it aims to take energy efficiency issues from other existing BREFs and present generic approaches supporting the development/definition of best techniques for reaching maximum energy efficiency. The final document will give guidance to target groups and other interested parties (it is neither legislative nor binding in any other way).



Best Available REFerence Techniques (BREFs)

- Intensive Rearing of Pigs and Poultry
(final document July 2003)

Addresses all aspects of intensive farming of pigs and poultry and describes procedures for manure/slurry processing (pp.286-287) and the benefits of anaerobic treatment (pp.252-253). AD is recommended as BAT where there is a market for "Green Energy" and local regulations allow co-digestion of other waste products and landspreading of digestate.



Best Available REFerence Techniques (BREFs)

- Slaughterhouses and Animal By-product Industries
(final document May 2005)

Addresses all aspects of slaughterhouse operation and the treatment of wastes and residues. Describes the AD process generally (pp.88-90 & pp.355-358) and summarises status of plants in D, A, S & UK (most of the latter have closed, post-2000). Does not specifically define BAT for AD.



Well-to-Wheels Study

Key Findings: Compressed Natural Gas (CNG), Biogas & LPG

- Today the WTW GHG emissions for CNG lie between gasoline and diesel, approaching diesel in the best case.
- Beyond 2010, greater engine efficiency gains are predicted for CNG vehicles, especially with hybridization.
 - WTW GHG emissions become lower than those of diesel.
 - WTW energy use remains higher than for gasoline except for hybrids for which it becomes lower than diesel.
- The origin of the natural gas and the supply pathway are critical to the overall WTW energy and GHG balance.
- LPG provides a small WTW GHG emissions saving compared to gasoline and diesel.



Well-to-Wheels Study

Key Findings: Compressed Natural Gas (CNG), Biogas & LPG

- Limited CO₂ saving potential coupled with refuelling infrastructure and vehicle costs lead to a fairly high cost per tonne of CO₂ avoided for CNG and LPG.
- While natural gas supply is unlikely to be a serious issue at least in the medium term, infrastructure and market barriers are likely to be the main factors constraining the development of CNG.
- When made from waste material biogas provides relatively low cost GHG savings.

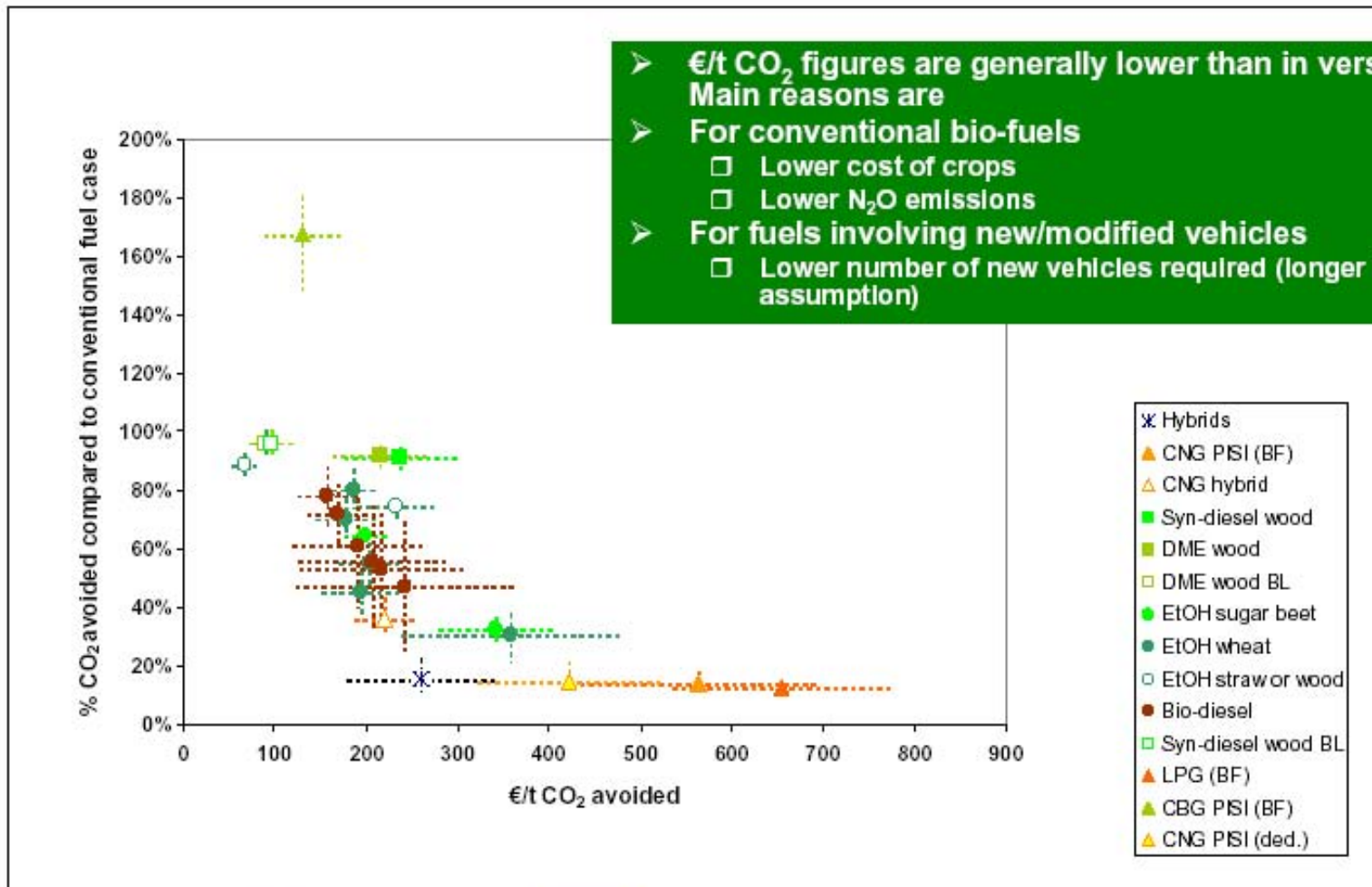


Well-to-Wheels Study

Cost v. potential for CO₂ avoidance

Oil price scenario: 25 €/bbl

Liquid fuels, DME/LPG/CNG/CBG



➤ €/t CO₂ figures are generally lower than in version 1. Main reasons are

- For conventional bio-fuels
 - Lower cost of crops
 - Lower N₂O emissions
- For fuels involving new/modified vehicles
 - Lower number of new vehicles required (longer life assumption)

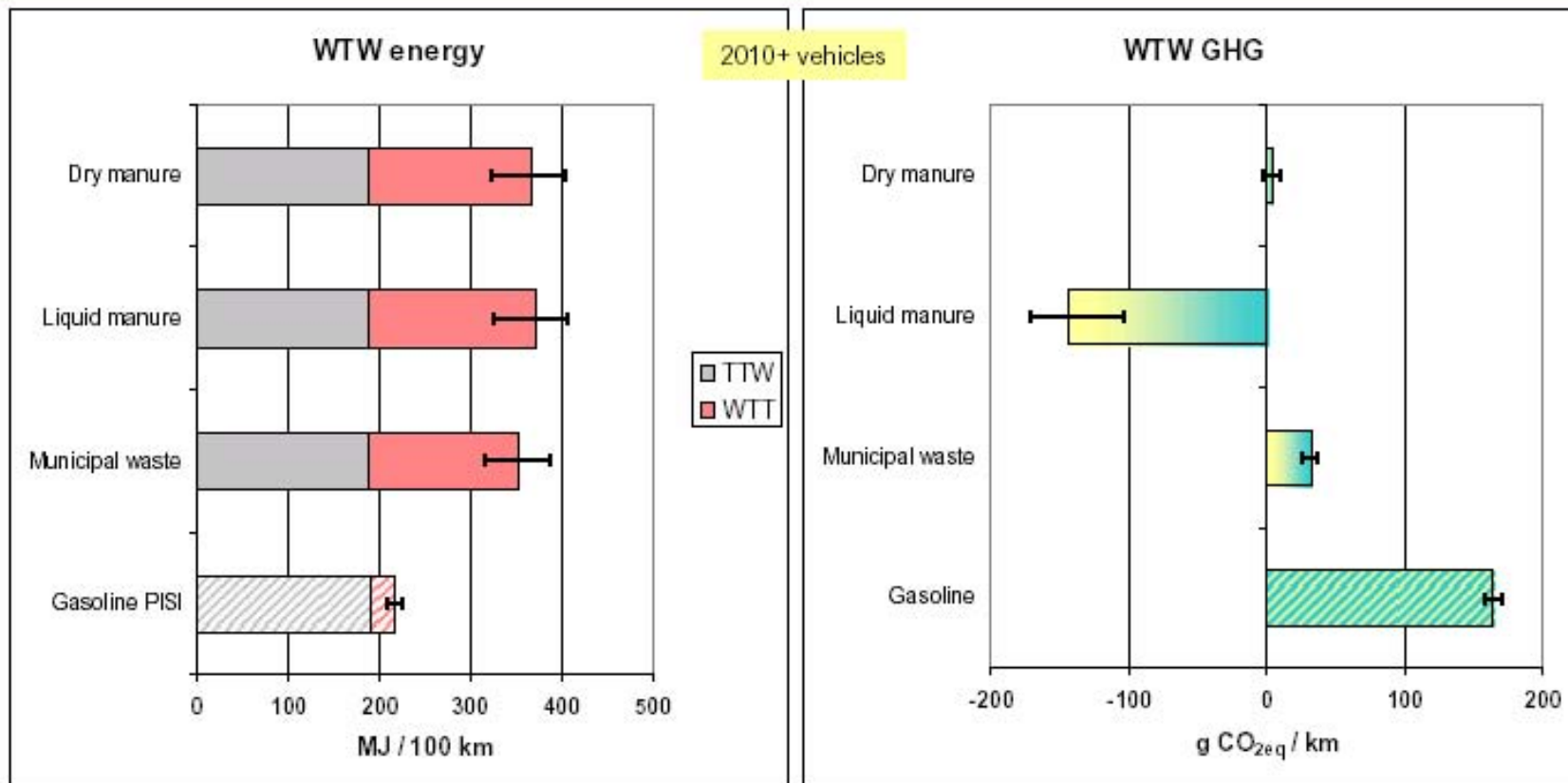
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Well-to-Wheels Study

Compressed Biogas (CBG)



- Because it uses a waste product, biogas has a favourable GHG balance
- Using wet manure in this way stops methane emissions to atmosphere, the result of intensive livestock rearing rather than an intrinsic quality of biogas



Biomass Action Plan (DG TREN)

Official European Commission document on the Biomass Action Plan published on December 7th 2005 [COM (2005) 628]

AD/biogas only mentioned briefly as possible source of bio-methane from treatment of animal by-products

Predominant focus on bioethanol and biodiesel

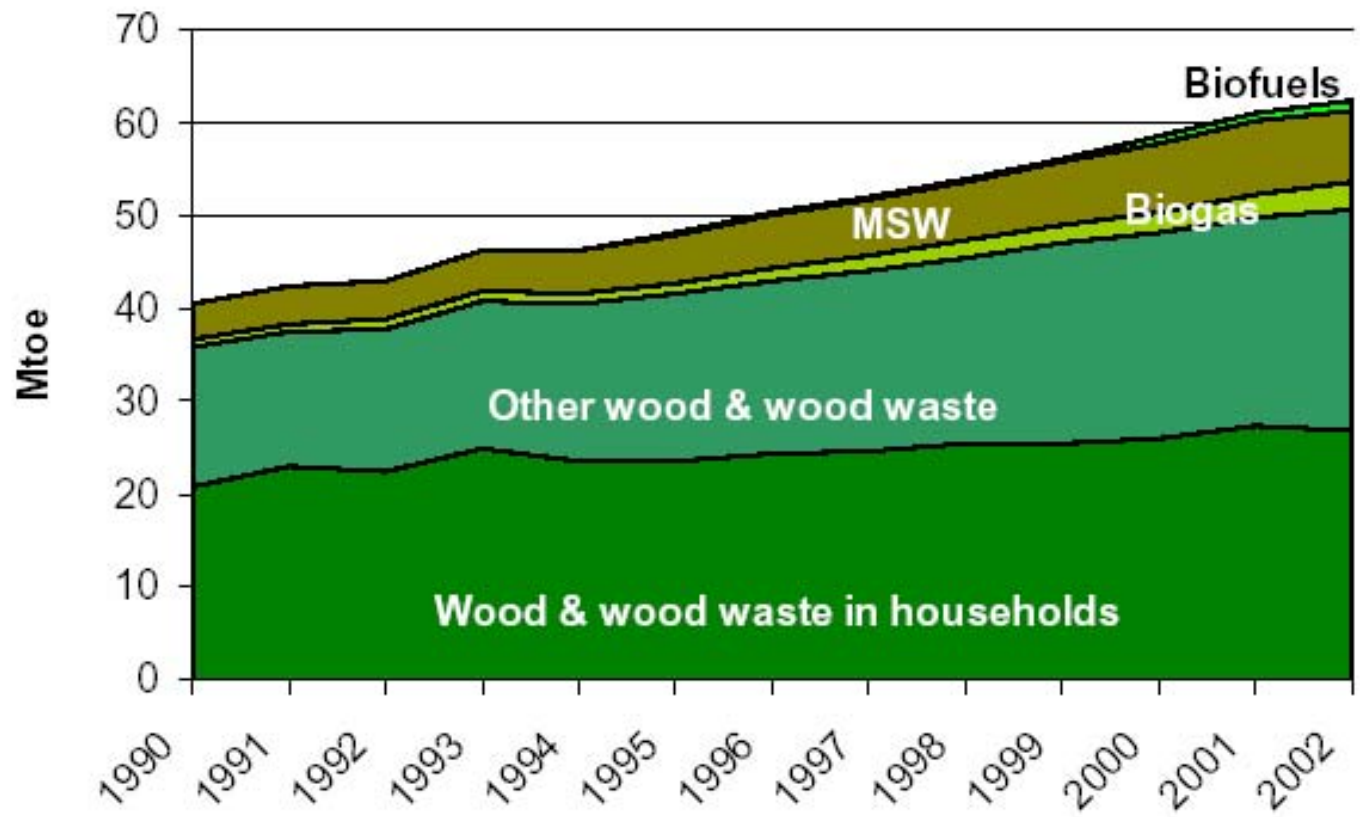
Official European Commission document on an EU Strategy for Biofuels published on February 8th 2006 [COM (2006) 34] - very little attention paid to biogas



Gross Energy Consumption

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EU25, 1990-2002, biomass & waste only



Source: EUROSTAT

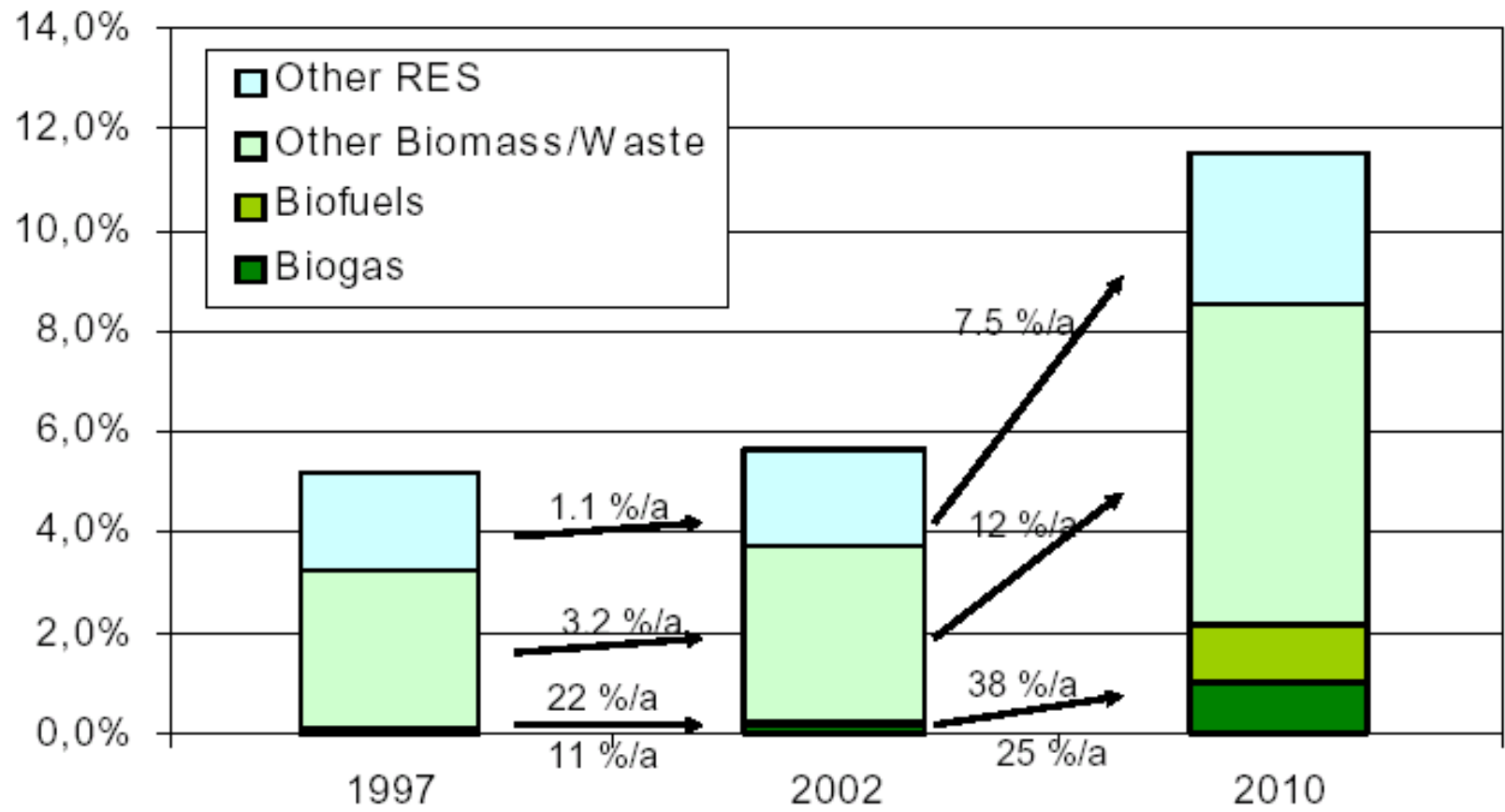
Slide Courtesy of J.Riesgo: EC-DG TREN





Targets

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Source: EUROSTAT, White Paper COM(97)599 final

Slide Courtesy of J.Riesgo: EC-DG TREN





European Climate Change Programme 2 (ECCP2)

Topic 5: Agriculture and Forestry

Stakeholder Workshops: January 31st & March 2nd 2006
Presentations and discussions on N₂O & CH₄
emissions from agricultural and forestry

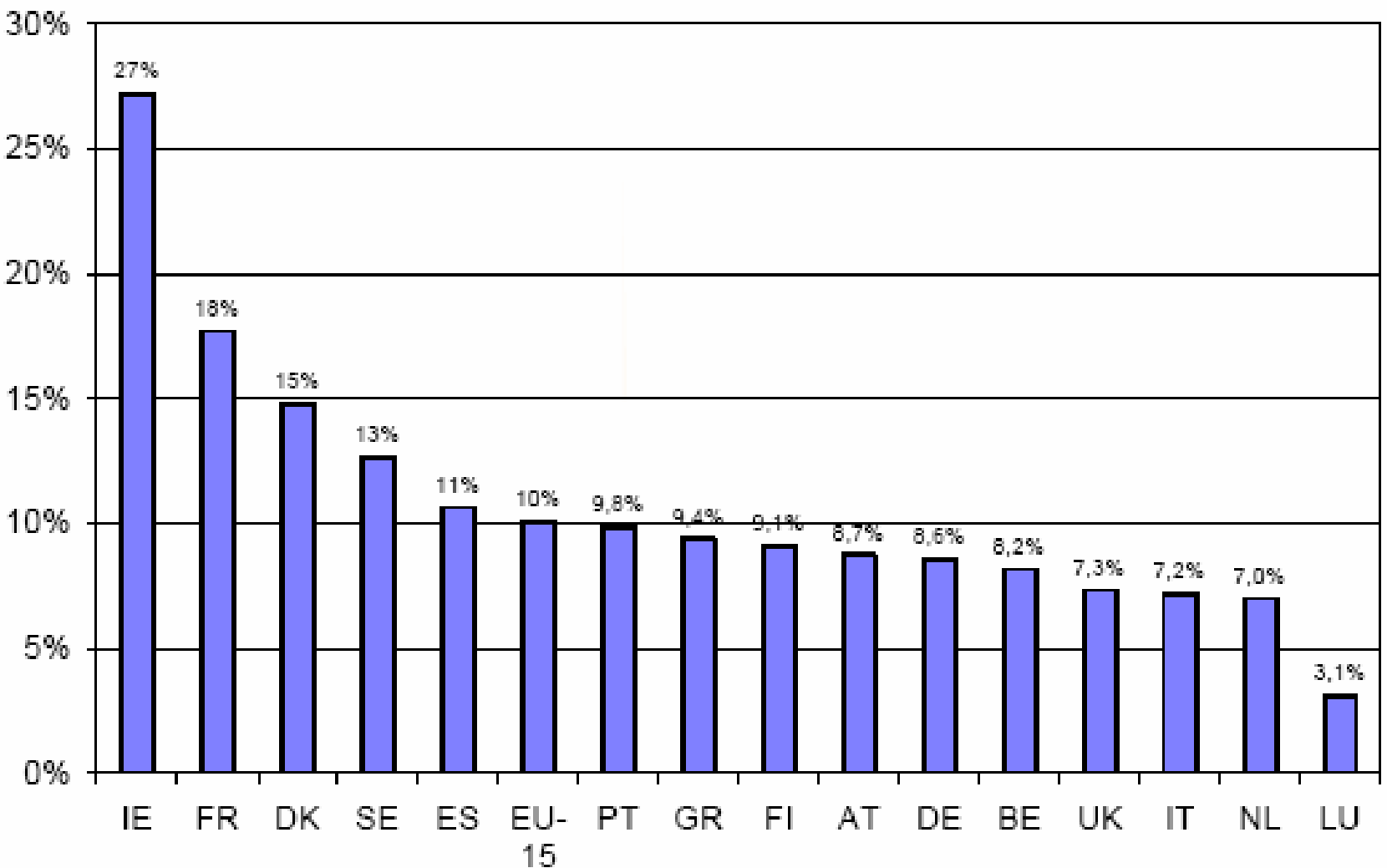
Report on status of emissions (always compared to 1990 levels) expected in May 2006 (*Total EU-25 GHG emissions from agriculture decreased by 14 % between 1990 and 2003*)

Biogas: expected to be strong support for farm-scale biogas plants



National Greenhouse Gas Emissions Reductions from Agriculture

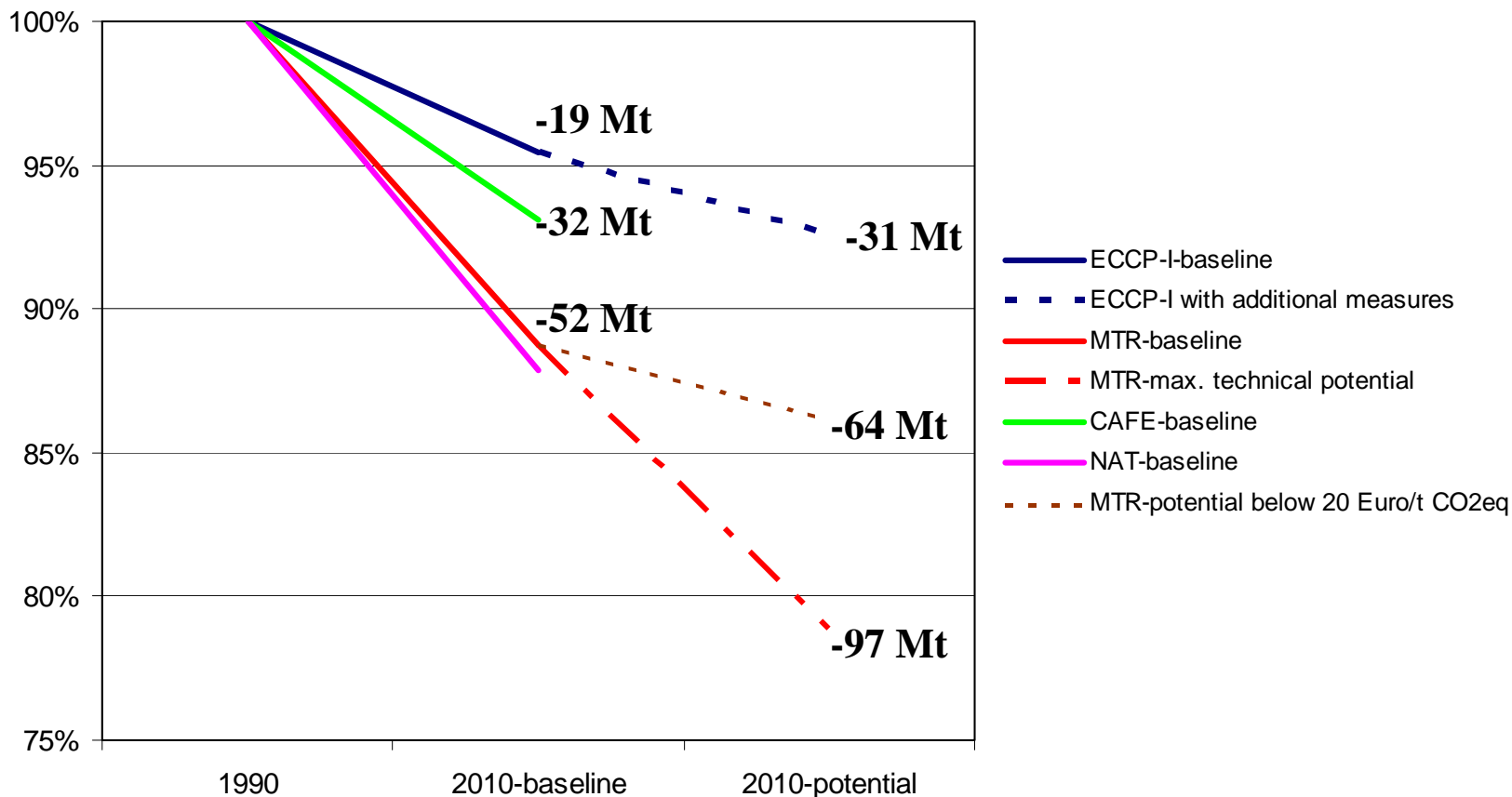
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Source: IRENA project



Comparison of the baselines and potential GHG reductions estimated within ECCP-I and the current GAINS scenarios (reduction relative to 1990, Mt CO₂ eq.)



“Biogas production from manure (and by-products) is one of the most promising measures for the future”



Manure Processing Conference

Motive: Support to implementation of the Nitrates Directive (91/676/EEC)

Organiser: DG Environment
with support from Alterra (consultant from NL),
DGs AGRI , SANCO, RTD & JRC

Location: Brussels

Date: Late 2006 (Oct/Nov ?)



Manure Processing Conference

Scope: To exchange views and experiences within Member States (MS) on manure processing.

Experienced speakers from various MS and the Commission will be invited to assess the state-of-the-art of treatment technologies, including energy recovery, addressing both small- and large- scale treatment systems, market possibilities for products, economic feasibility, future perspectives and relevant EU-legislation.

Target Audience: Farmer organisations, environmental groups, research centres, universities, MS administrations



Manure Processing Conference

Invitation: IEA Bioenergy Task 37 is invited to propose expert speakers

(Note: it is likely that associated travel and accommodation costs will be refunded – to be confirmed)

(Question: Would we like possible speakers to be part of IEA Bioenergy or from own individual organisations ?)



Useful Contact Details and References

- **Biomass Action Plan:**
http://europa.eu.int/comm/energy/res/biomass_action_plan/green_electricity_en.htm
- **Best Available Techniques REFerence Documents:**
<http://eippcb.jrc.es/pages/Fmembers.htm>
- **Euro Barometer: June 2005:**
http://www.energies-renouvelables.org/observ-er/stat_baro/comm/baro167a.pdf
- **DG Energy and Transport web site:**
http://europa.eu.int/comm/energy/index_en.html
- **Contact Point for Waste and Biomass Related Activities at JRC-Institute for Energy:** <http://ie.jrc.cec.eu.int/>
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Thank you