



# The chemical industry's contribution to Energy Efficiency

Care+ Workshop  
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- **EU 20-20-20: Putting a «cap» on energy consumption by 2020?**
  
- **EU Council on 4 February 2011 refused to set binding targets for EU member states**
  - ✓ **Policy opportunities to make the EU more energy-efficient?**
  - ✓ **Balanced and cost-effective effort-sharing within society?**
  - ✓ **Role can the different industrial sectors?**
  - ✓ **Proposals for EU policy framework will come during 2011**



## ➤ **EU 20-20-20: What does a target mean?**

**UK think tank 'Policy Exchange' (Nov 2010):  
Developed world performance on carbon emissions is  
much worse than reported under Kyoto-style  
accounting:**

- ✓ **Total emissions **consumed** 1990-2006:**
  - **EU 47% rise (vs Kyoto 3%)**
  - **US 43% rise (vs 17%)**
  - **UK 30% rise (vs 3% fall)**
  - **Carbon consumed was net imported embedded in goods, having risen from negligible levels in 1990.**



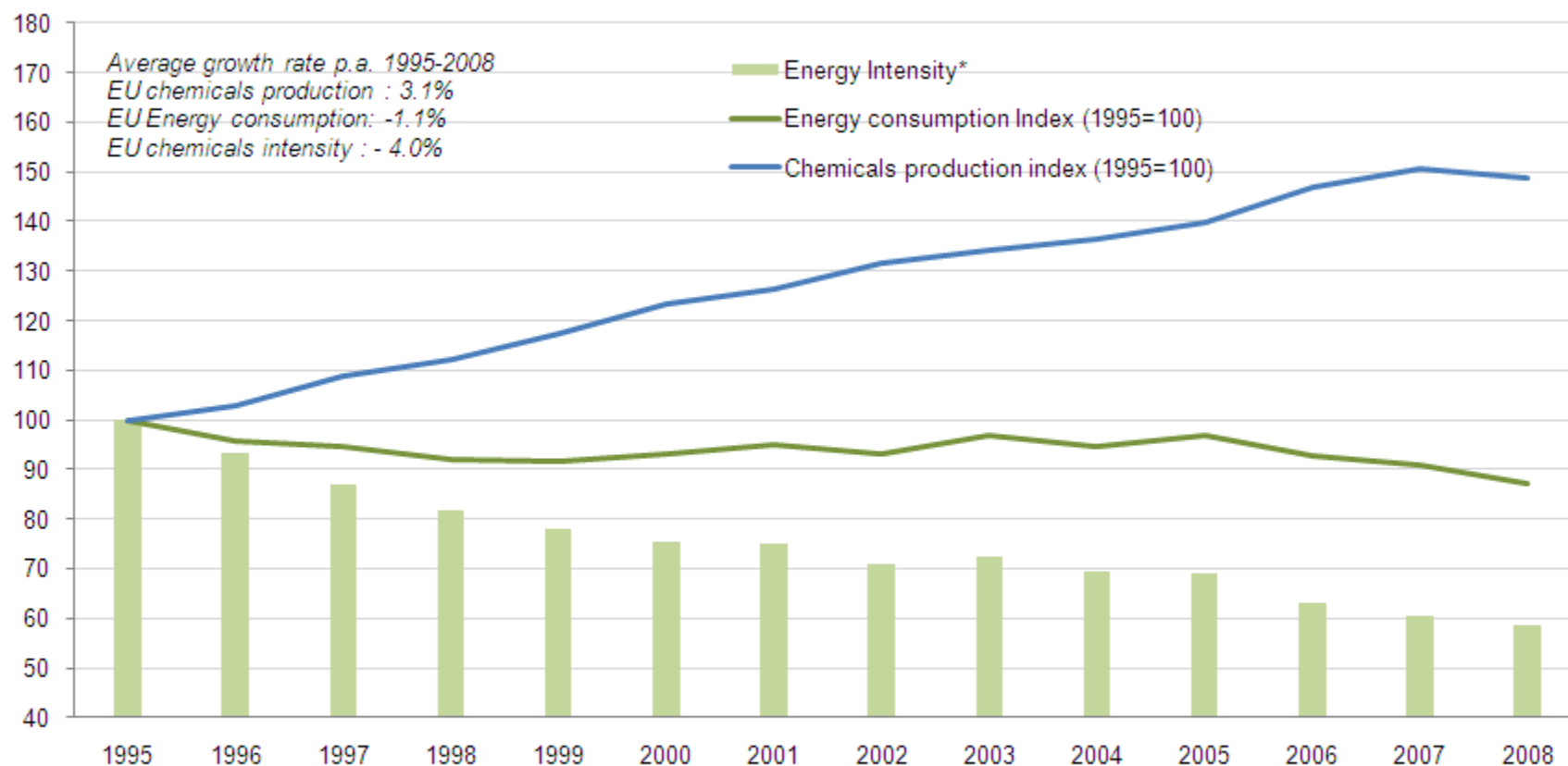
## ➤ **EU 20-20-20:**

- ✓ **Cefic sees need to put EU policy in global context**
- ✓ **No further unilateral targets in the absence of a global agreement**
- ✓ **Free, fair trade prohibits border adjustment threats**
- ✓ **EU unilateral top-down targets risk wrong policy signals (misallocation of resources, relocation)**
- ✓ **Efficiency potential to be looked at case-by-case**
- ✓ **'Low hanging fruits' to be harvested**



- **European chemical companies have impressive track records for developing innovative energy-efficient technologies and solutions.**
- **Their contribution places the European Union among the most energy-efficient regions of the world.**
- **In 2008, energy intensity, or the energy consumption per unit of production in the chemical industry, including pharmaceuticals, was 41 per cent lower than in 1995.**

# Energy intensity\* in the EU chemicals industry



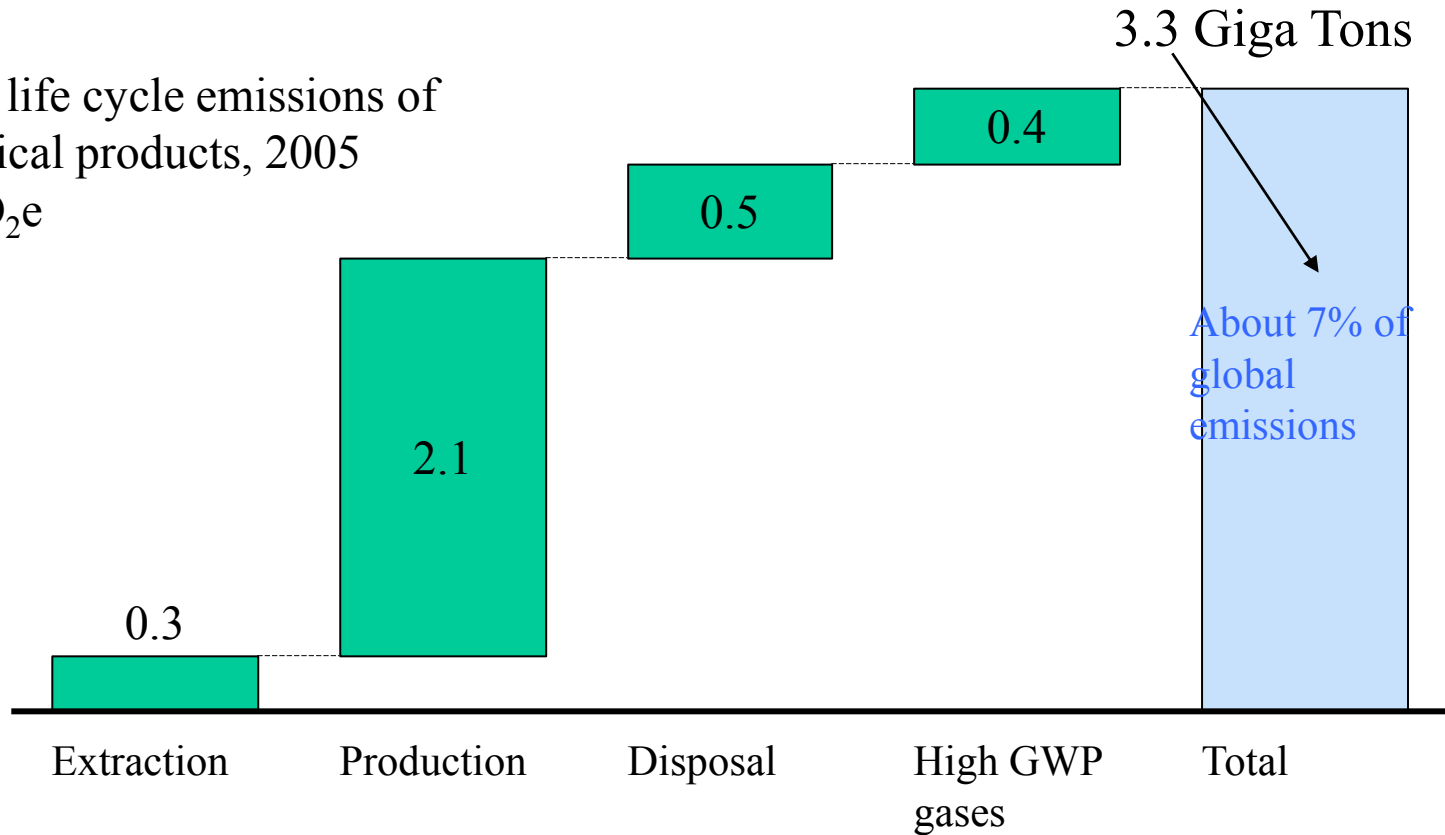
\*Energy intensity is measured by energy input per unit of chemicals production (including pharmaceuticals)

Source: Eurostat and Cefic Chemdata International

# Global chemical industry (ICCA)/ McKinsey study using total life cycle approach



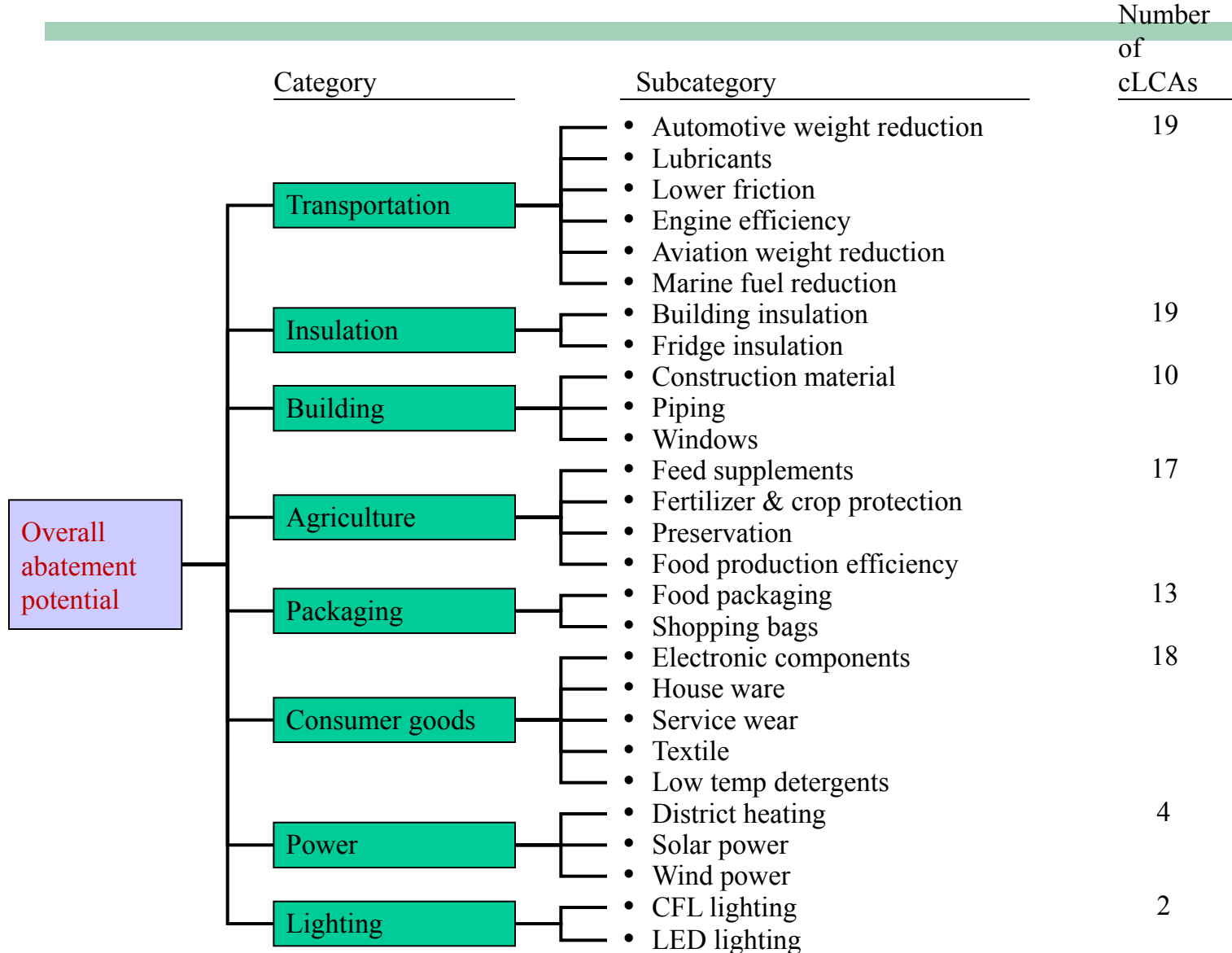
GHG life cycle emissions of chemical products, 2005  
GtCO<sub>2</sub>e



For references, assumptions and further details refer to report

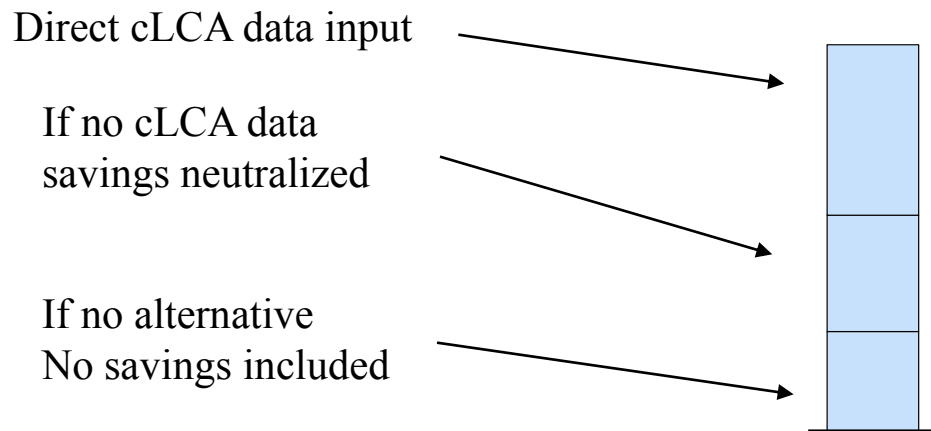
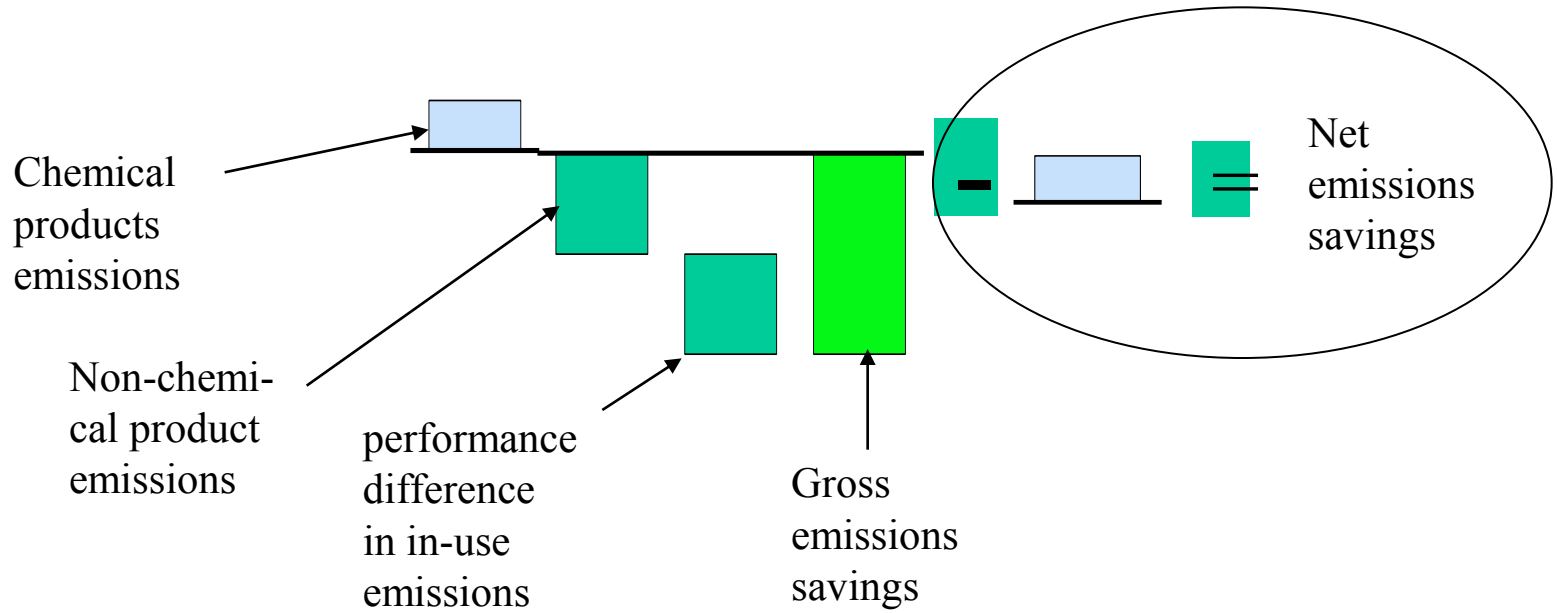


# Over 100 cLCAs to estimate Use Phase Impacts





# Methodology comparing with best alternative from outside chemical industry



Conservative assumptions used in extrapolations

# Production emissions substantively exceeded by in use savings

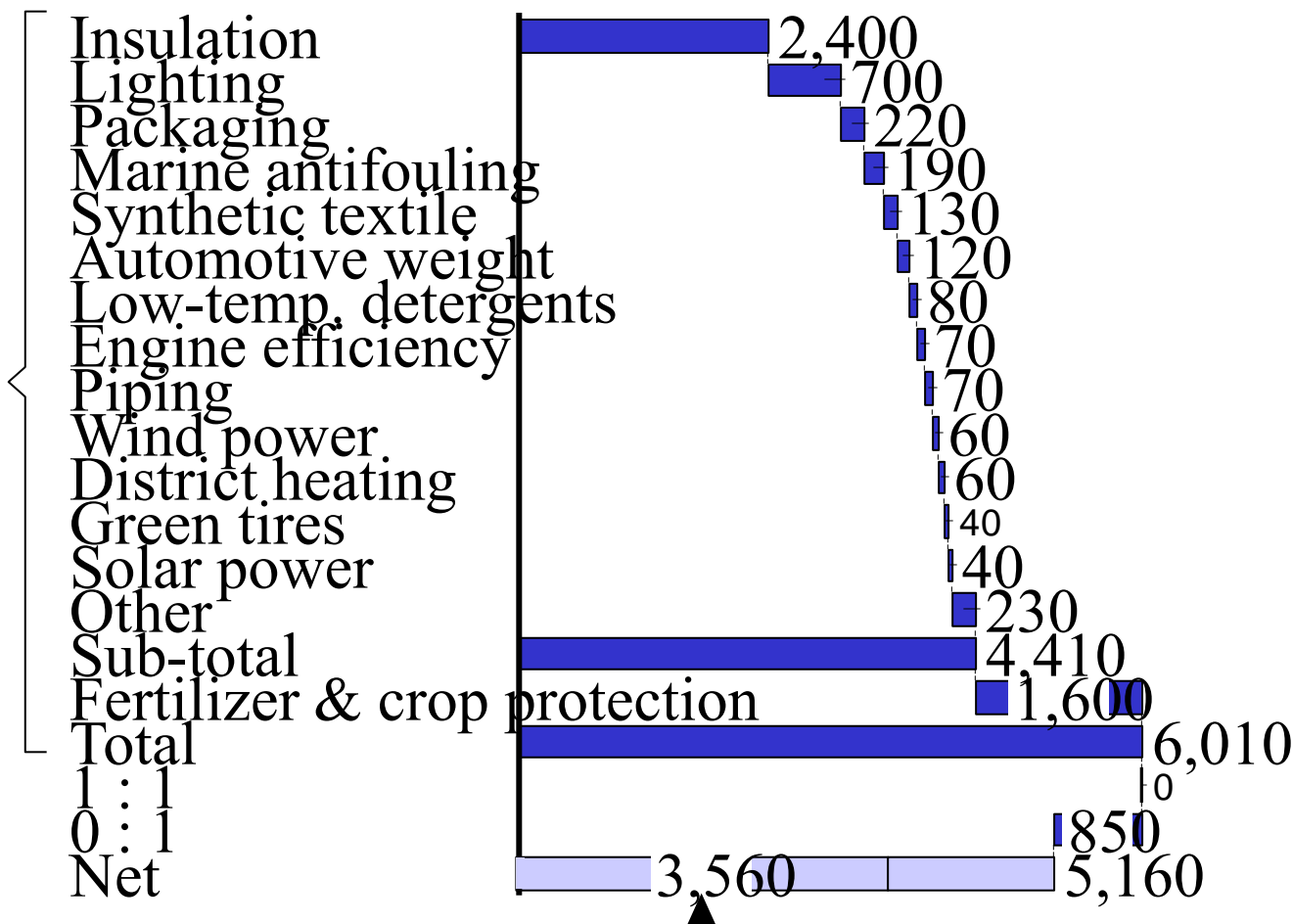


Net abatement 2005

MtCO<sub>2</sub>e

Net abatement volume per chemical application

Not explicitly calculated alternative



w/o fertilizer & crop protection



# Abatement measures in McKinsey analysis show gross savings could reach 4.7 : 1 and net abatement 18.5 GtCO<sub>2</sub>e



Gross savings ratio

2.6 : 1

3.1 : 1

4.7 : 1

Own emissions and gross savings

3.3

8.5

6.5

20.3

5.0

23.5

Net abatement GtCO<sub>2</sub>e

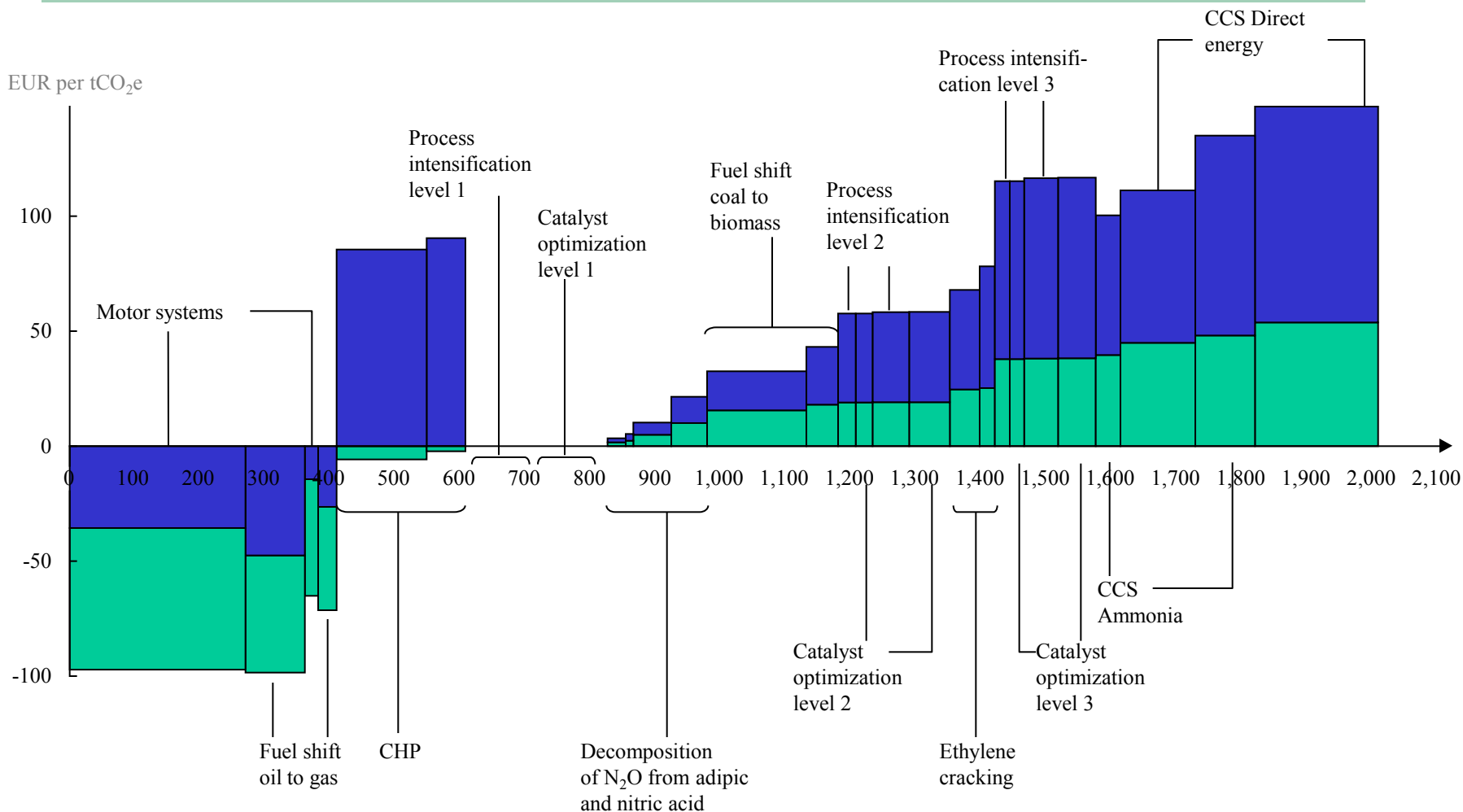
5.2

13.8

18.5

**Largest reduction opportunities occurring in developing countries where most new investments planned!**

# Realistic cost assessments reinforce need to focus first on larger / lower cost options



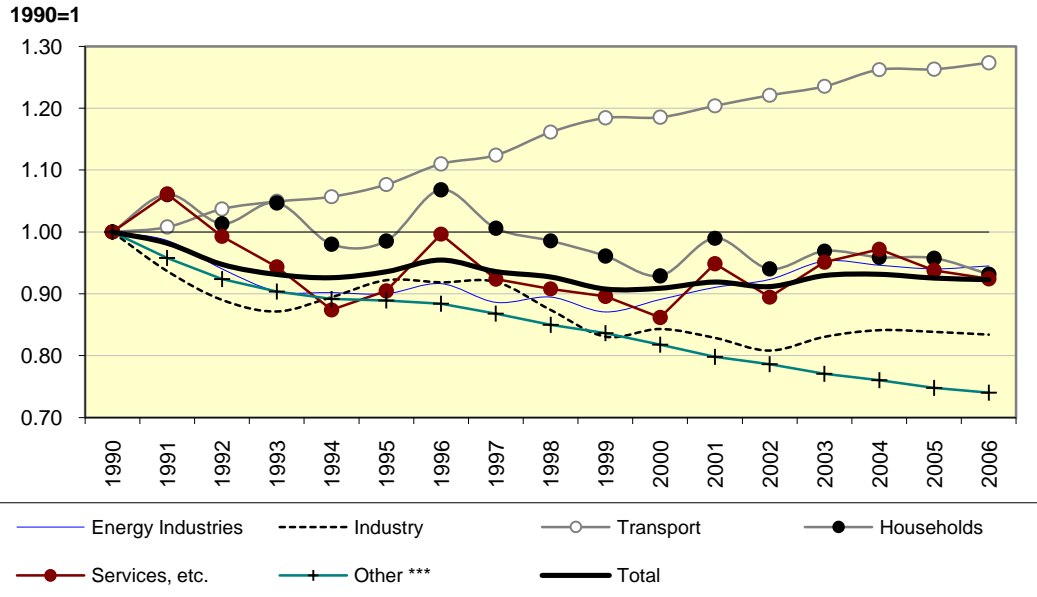
## GHG abatement cost curve for the chemical industry

■ Society view\*  
■ Business view\*\*

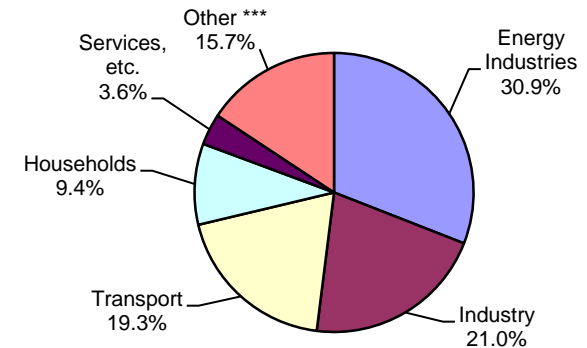
# Greenhouse Gas Emissions by Sector – EU 27



Greenhouse Gas Emissions (GHG)\* by Sector, EU-27

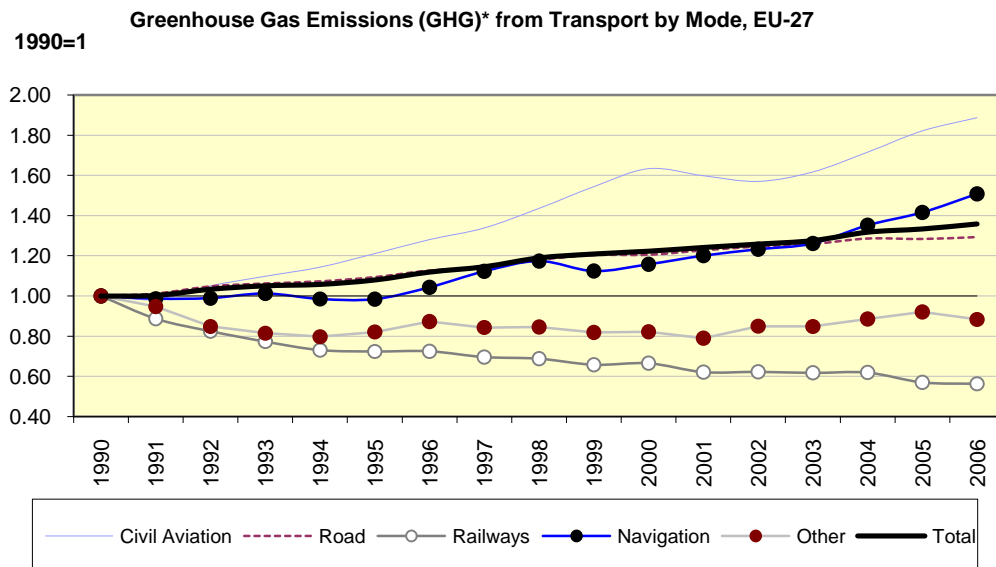


Greenhouse Gas Emissions (GHG)\* by Sector, EU-27 (2006)

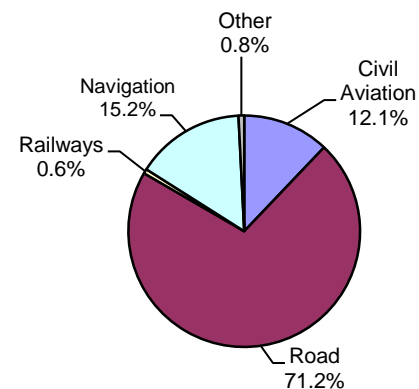


- 19,3% of GHG emissions are caused by transport, of which 1/3 by freight transportation
- Whilst GHG emissions from other sectors have leveled out or begun to decrease, GHG emissions from transport have risen steadily since 1990
- 98% of GHG emissions from transport are CO<sub>2</sub>

# Greenhouse Gas Emissions by Transport Mode EU-27



Greenhouse Gas Emissions (GHG)\* from Transport by Mode, EU-27 (2006)

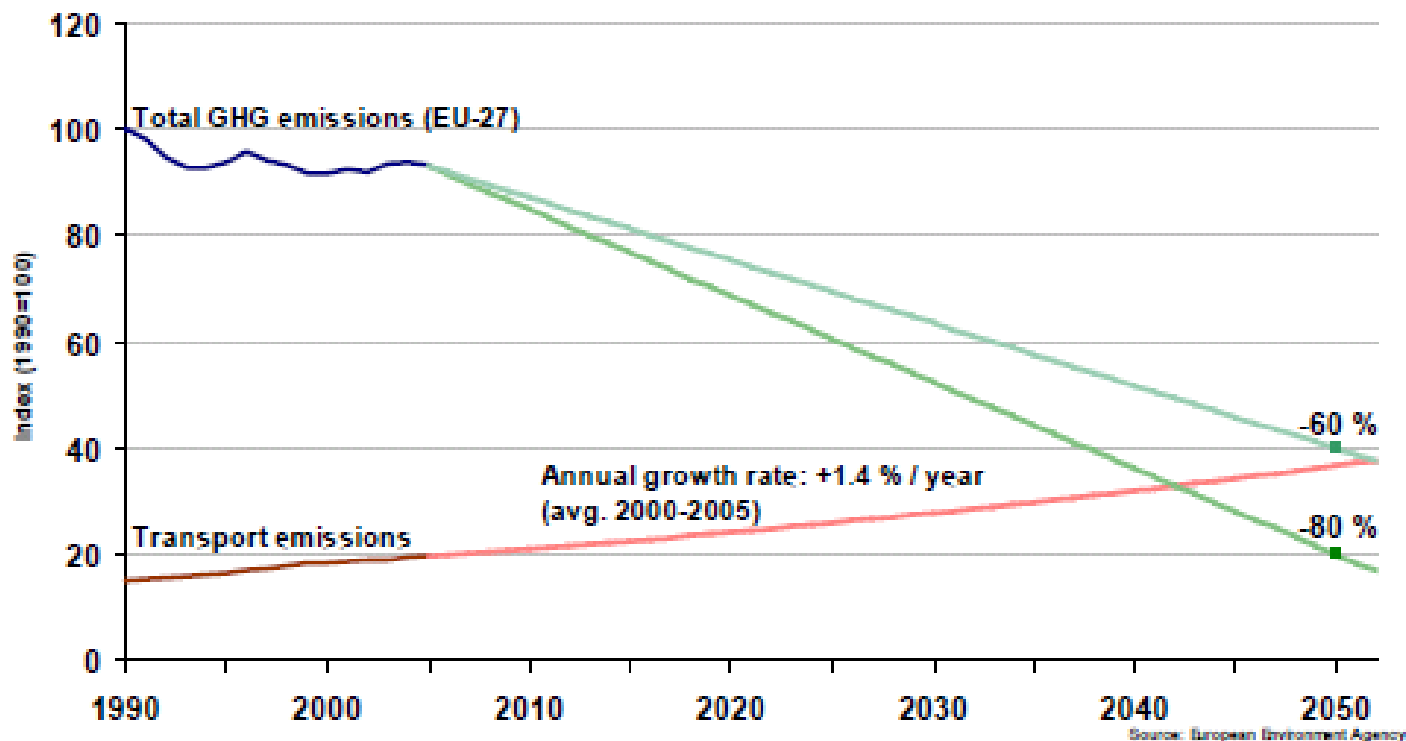


- The vast majority of European transport GHG emissions are produced by road transport
- Despite considerable gains in energy efficiency of transport, carbon emissions from air, sea and road transport are still increasing

# EU overall emissions trajectories

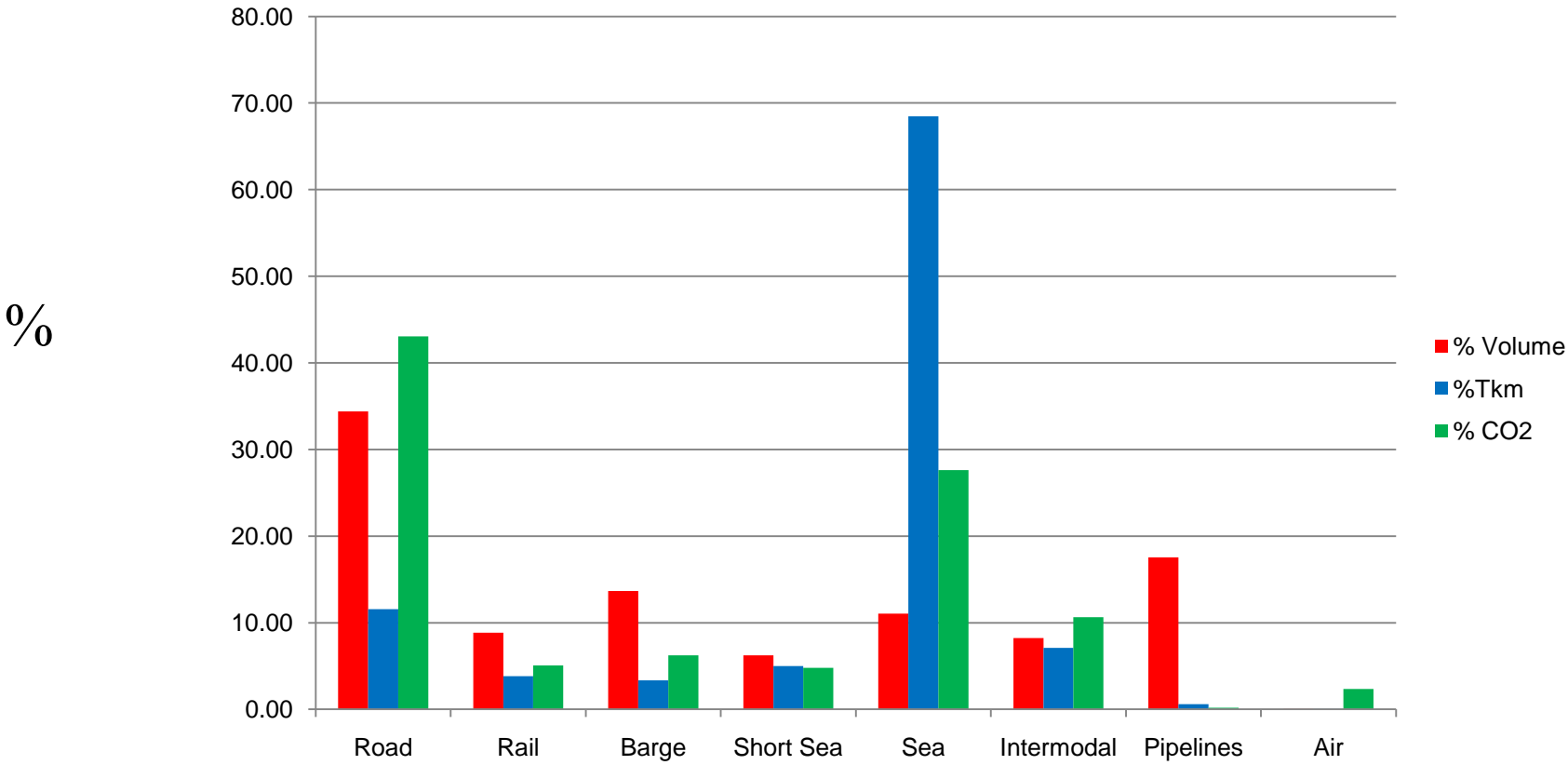


EU overall emissions trajectories compared with extrapolated transport emissions (indexed)<sup>4</sup>



- The EU-27 GHG emissions from transport have been increasing by 1,4% / year over the past years and are projected to continue to do so.
- The growth rate of transport GHG emissions has the potential to undermine the EU's efforts to meet long-term GHG emission reduction targets, if no action is taken.

# Results Cefic Survey 12 Chemical Companies: Share of different modes





# Business Case for 'Green Logistics' in companies

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## Main drivers

- Efficiency improvements / cost reductions
- Corporate green image (sustainability index / CSR etc)
- Customer expectations
- Future legislation (carbon taxes?)

Share of transport CO<sub>2</sub> emissions compared to total company CO<sub>2</sub> emissions is relatively small (2- 10%)



- **Priority to effective application of existing energy efficiency policy instruments, instead of adding new layers of regulation. Concrete EU policy areas:**
  - ✓ **Incentivise production efficiency improvements where necessary**
  - ✓ **Incentivise EE improvements in all economic areas:**
    - **Refurbishment of existing buildings and construction of new buildings**
    - **Promotion of Combined and Heat Power (CHP)**
    - **Consideration of life cycle approach**



**New global chemical industry projects in cooperation with International Energy Agency (IEA) during 2011:**

- **Technology roadmaps to develop ghg/energy efficiency potentials towards 2050**
  - **Catalysis (Cefic)**
  - **Biomaterials (Japanese chemical Industry)**
  - **Housing (US chemical industry)**



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# THANKS FOR YOUR ATTENTION!

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