

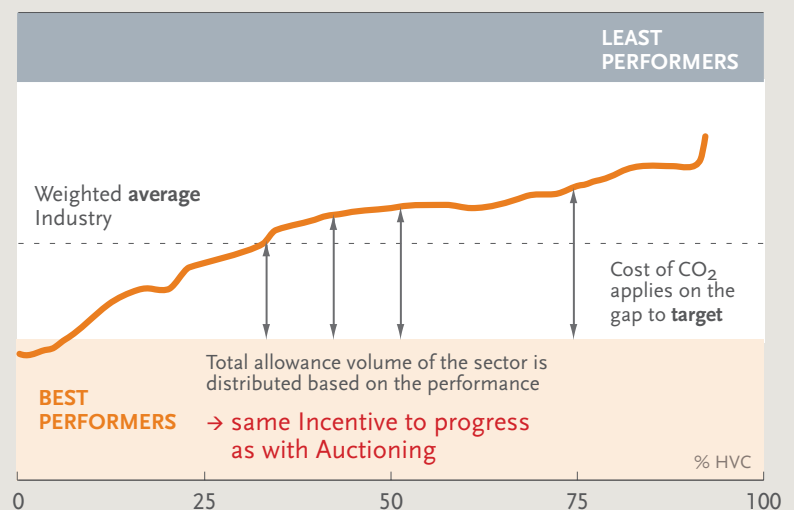
Performance-based benchmark vs auctioning method

The industry proposal is addressing this CO₂ issue through a simple and transparent **benchmarking method that preserves EU competitiveness** whilst achieving the EU environmental goals at lower costs. This method was developed in cooperation with all European olefins producers and is used for steam crackers:

- It is a simple and transparent method that can be applied to the whole petrochemical industry.
- This approach is supported by the entire sector which enjoys a 20 years experience within benchmark.
- The performance can be represented in terms of CO₂/ton of High Value Chemicals (HVC = ethylene + propylene + main co-products).
- Consistent rules for assessment of CO₂ performance have been defined. Within the sector envelope individual allocations can be derived from the performance curve.
- This system will favour best performers and stimulate least performers.

- Benchmarking provides the same incentive for Industry to invest in CO₂ reduction as auctioning.
- Benchmarking offers a transparent solution and encourages continuous improvement.
- Benchmarking will prevent carbon leakage while meeting EU environment targets and the goals defined in ETS.

Fig 3: CO₂ Performance
t CO₂/t Chemicals



Petrochemicals

essential building blocks to climate change solutions

appe
ASSOCIATION OF
PETROCHEMICALS PRODUCERS
IN EUROPE



*Appe is an industry sector of Cefic,
the European Chemical Industry Council*



Petrochemicals are part of the climate change solution

THEY ARE ESSENTIAL BUILDING BLOCKS

IN YOUR HOUSE...

- Wall insulation offers:
 - all-season thermal protection
 - dramatically lower heating costs
 - barrier to moisture
 - pleasant indoor climate
 - increased durability of building
- Energy consumption can be reduced by 35% thanks to high-performance insulation materials.

IN YOUR CAR...

- Lightweight resistant plastics offer:
 - reduced consumption & emissions
 - impact absorption
 - improved safety
 - flexible & durable parts in vehicle (bumpers, door panels, dashboards)
- Greenhouse gas emissions can be reduced by 20% through light materials and energy efficient tyres.

THEY ARE ESSENTIAL FOR EU ECONOMY

- Petrochemicals are the decisive link in a chain that allows crude oil or natural gas to be turned into a full bunch of sophisticated chemicals and consumer products.
- Over 12,000 processing industries with sales over 500 billion € convert petrochemical derivatives into devices making our life easier, safer and more comfortable.
- Petrochemical industries account for 370,000 direct employees and offer 2 jobs in service area for each job in the petrochemical industry.
- Petrochemicals are essential building blocks for most innovations, which enable industry to provide solutions to society's challenges such as energy, food or health care.
- Petrochemical industry is an active contributor to the Lisbon agenda.

www.petrochemistry.net

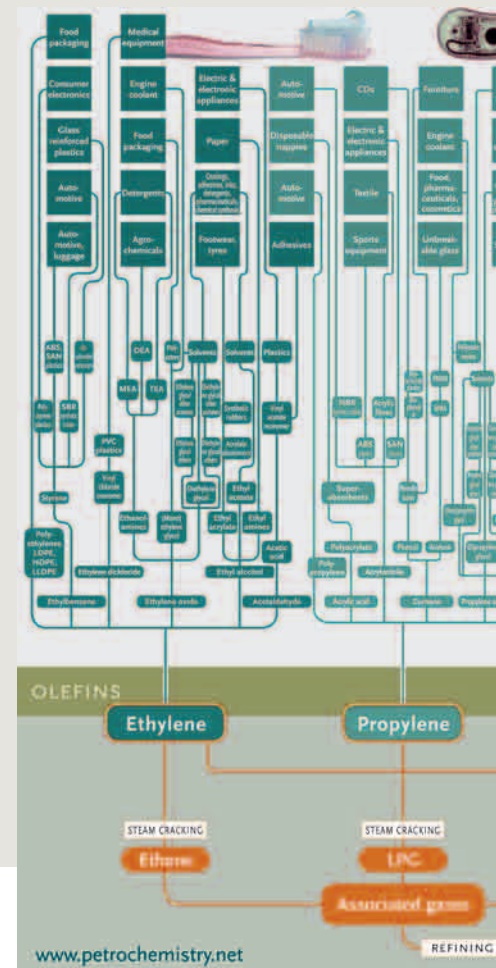


Fig 1: Key Products Exposed to International Competition (%)

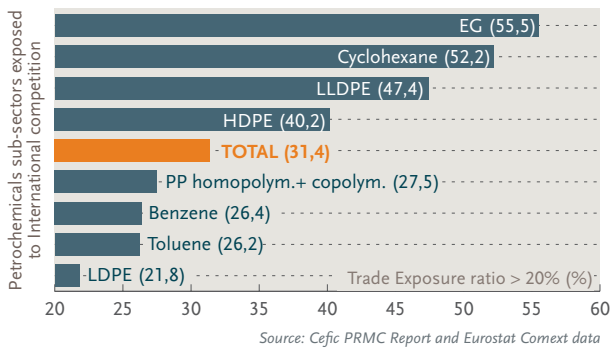
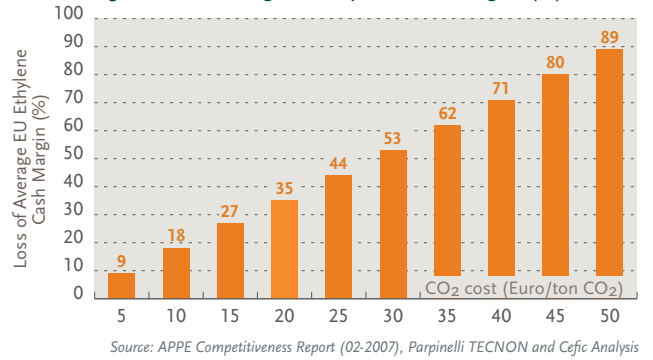


Fig 2: Loss of Average EU Ethylene Cash Margins (%)

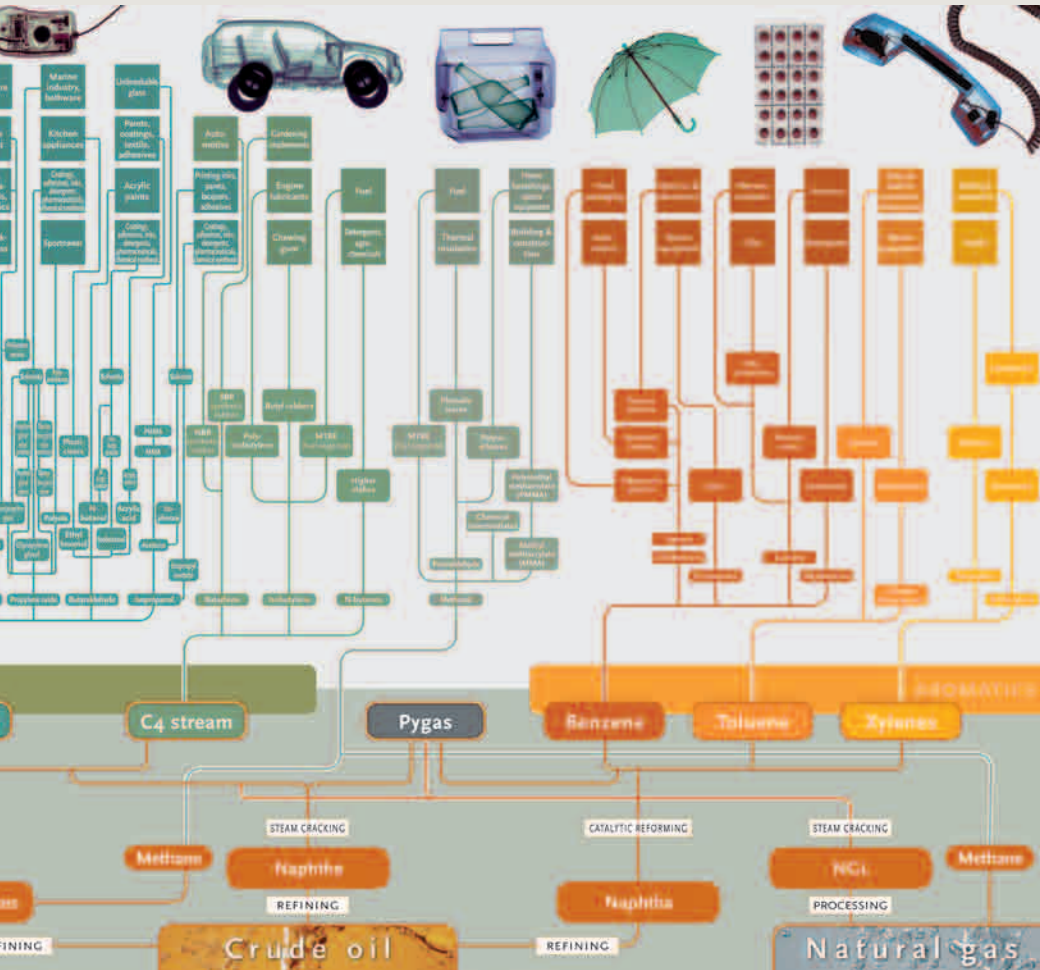


A sector exposed to international competition

→ Through the revision of **ETS Directive** the European Commission envisages auctioning all CO₂ allowances after 2012. With more than 60% of its production costs related to energy, petrochemical industry is an energy intensive sector with small and cyclical profit margins. Through intensive trade at global level, petrochemicals are highly exposed to international competition (See figure 1). International pricing prevents European petrochemical manufacturers to pass CO₂ costs through customers on derivatives of ethylene, propylene or aromatics.

→ If auctioning is the rule and in absence of flexibility to pass CO₂ costs through customers, an additional tax of 20 to 50 €/ton of CO₂ will reduce operational margins by 30% to 90% and will remove the capacity to invest including in emission reduction technologies. Such loss in capacity to invest could result into significant delocalisation of production capacity leading to carbon leakage to regions with lower energy performance. (See figure 2)

→ Benchmarking based on performance is much more cost effective whilst safeguarding the EU ETS goals and EU industries competitiveness.



Petrochemicals are the building blocks behind innovations that improve our lives beyond imagination. With their unique properties, they bring solutions to climate change and to society's biggest challenges.

