



Cefic comments on exposure and carbon leakage of the European chemical industry

Ad hoc meeting of the

ECCP working group on emissions trading on Carbon leakage and auctioning
Brussels, 11 April 2008

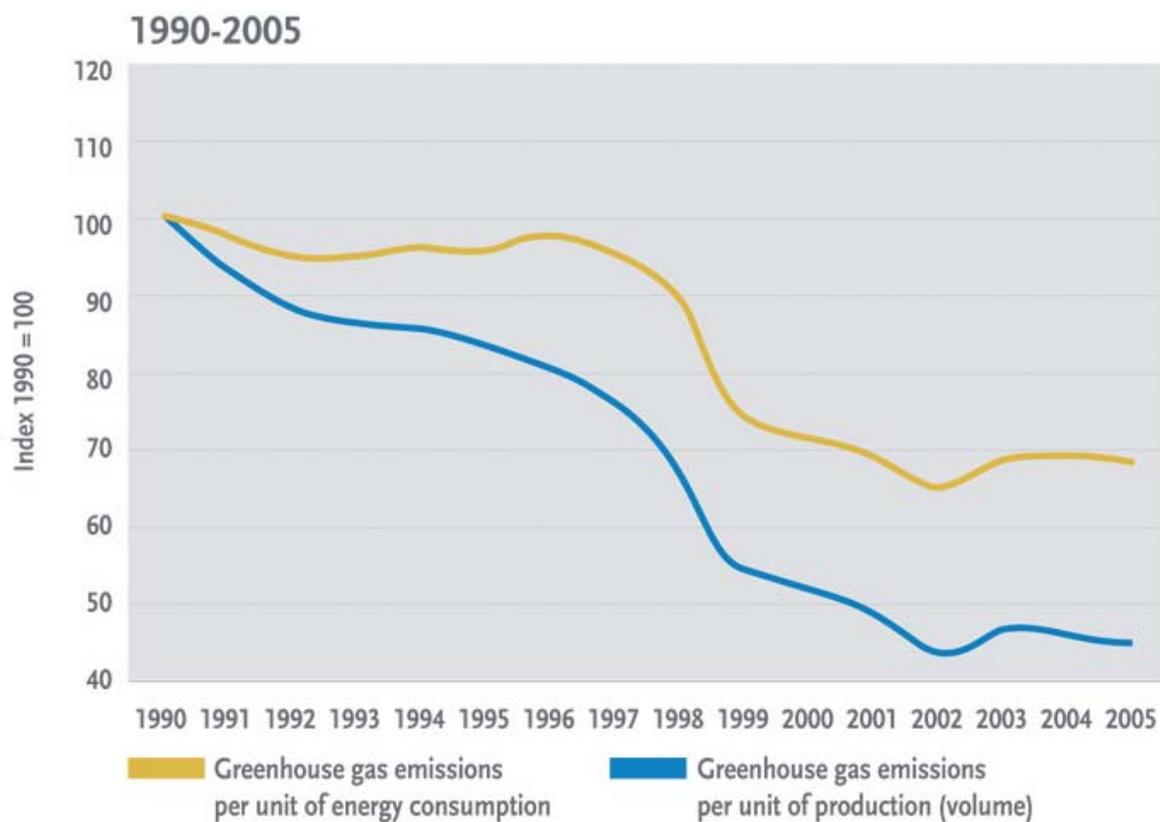
Wolfgang Gerhardt, BASF SE



GHG and energy intensity reductions



EU chemical industry* greenhouse gas emissions per unit of energy consumption and per unit of production



Sources: Cefic Chemdata International, European Environment Agency (EEA) and Eurostat
* Including pharmaceuticals

Key messages

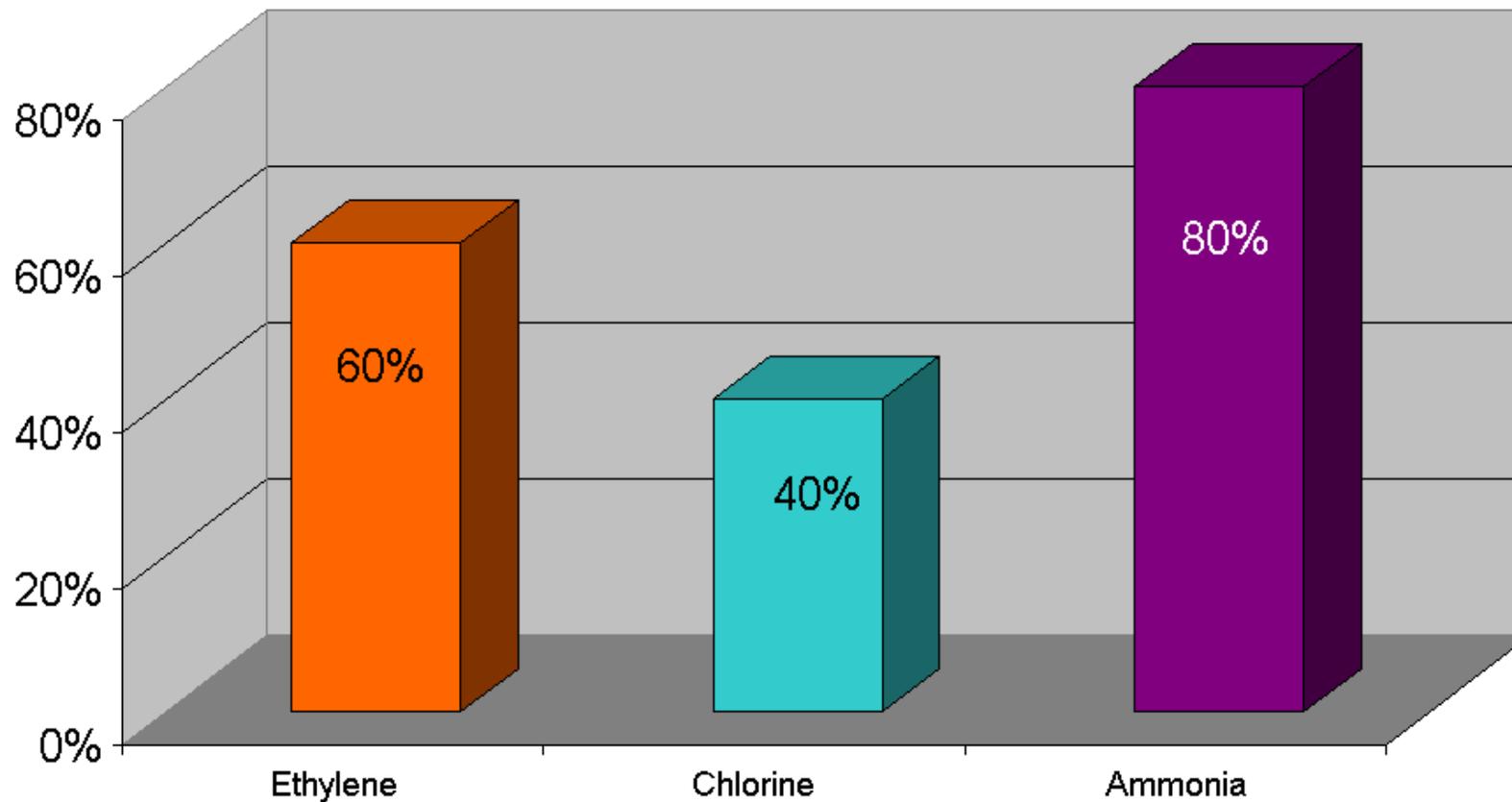


- **The chemical industry is**
 - ✓ **Built on energy intensive building blocks (such as ethylene, ammonia, chlorine) with high energy related cost**
 - ✓ **Highly integrated along value chain and customer industries**
 - ✓ **Competing globally and highly exposed to trade**
 - ✓ **Not able to pass through unilateral cost to its customer industries**
 - ✓ **At risk for delocalisation and carbon leakage**
 - ✓ **Part of solution to climate change**
- **Need for free allocation according to benchmarks to keep manufacturing base and innovation capacity in EU**

The chemical industry is based on highly energy intensive building blocks



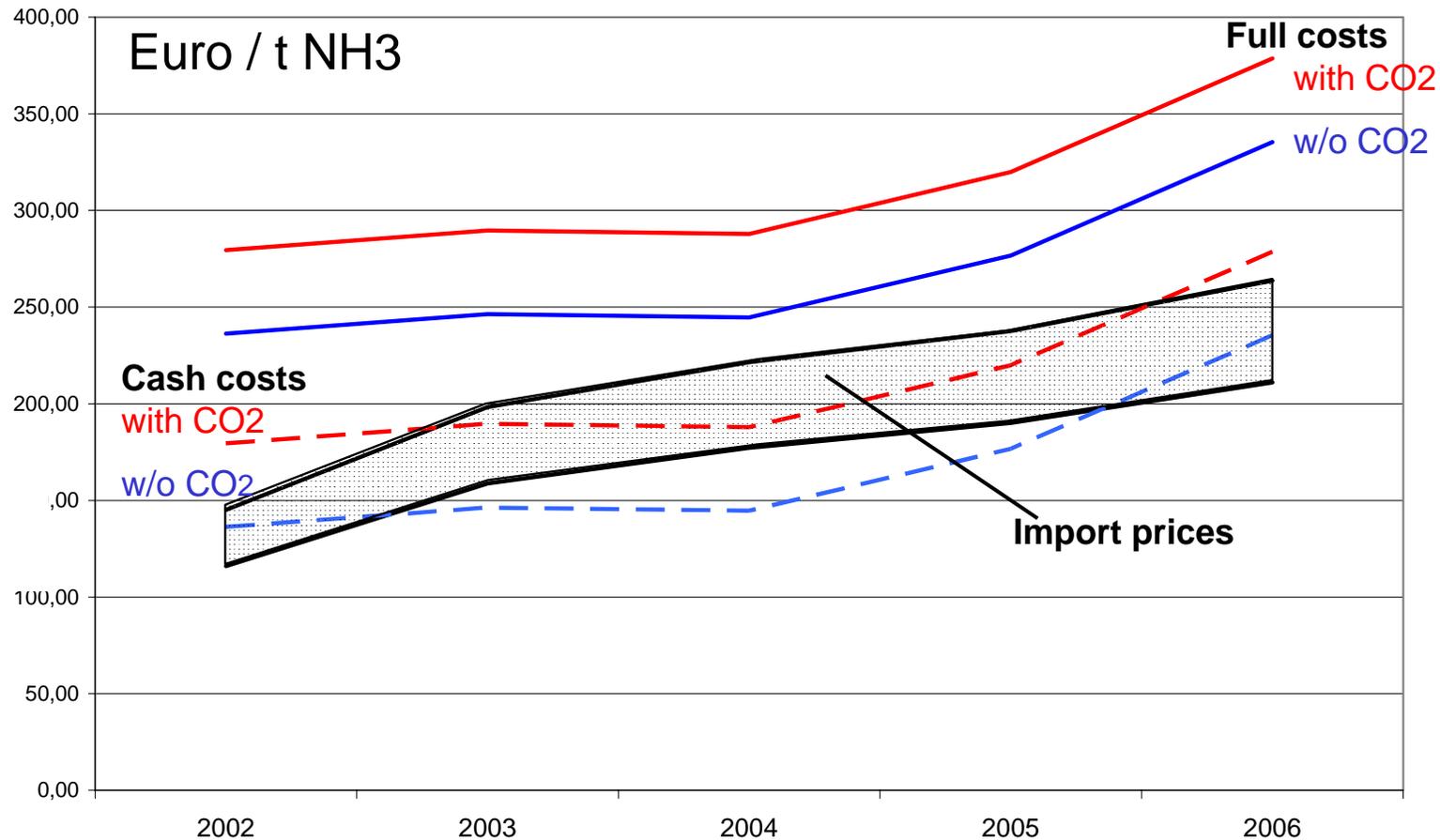
Energy cost^{*} as part of total production cost for selected chemical subsectors



Sources: IEA "Tracking industrial Energy Efficiency and CO2 emissions" (2007), **Prochemics "Impact of Electricity Price on the Competitiveness of the European Chlor-Alkali Industry" 2007, TECNON "Parpinelli Report"

* Energy and feedstock

Influence on ammonia production (60% auctioning 2013-2020, 35 Euro/t CO₂)

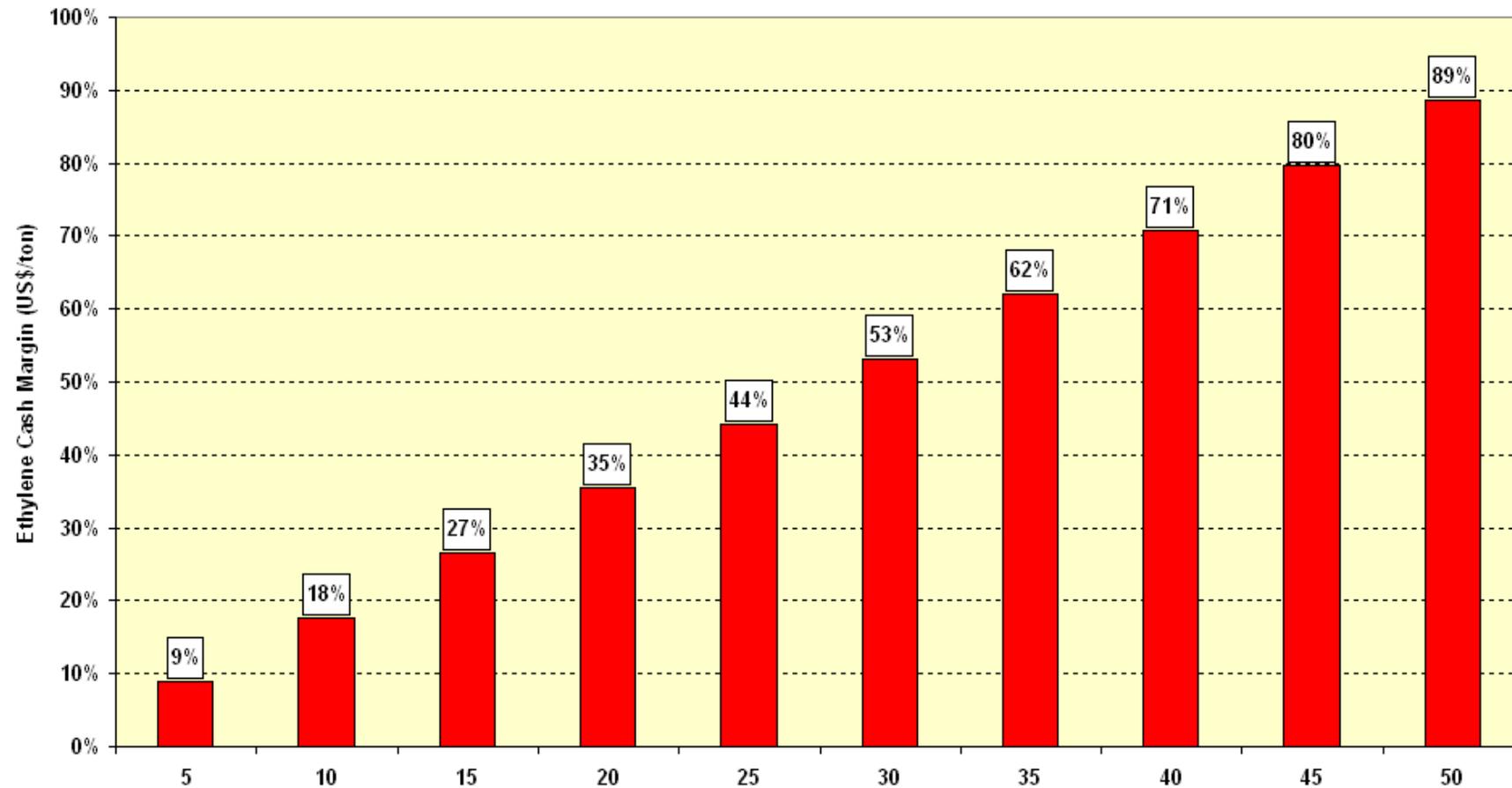


Even partial auctioning of CO₂ allowances would mean that EU based production would be replaced by imports

Influence on ethylene production (100% auctioning)



Loss of Average EU Ethylene Cash Margins (US\$/ton)



Source: APPE Competitiveness Report (Q2-2007), Parpinelli TECNON and Cefic Analysis

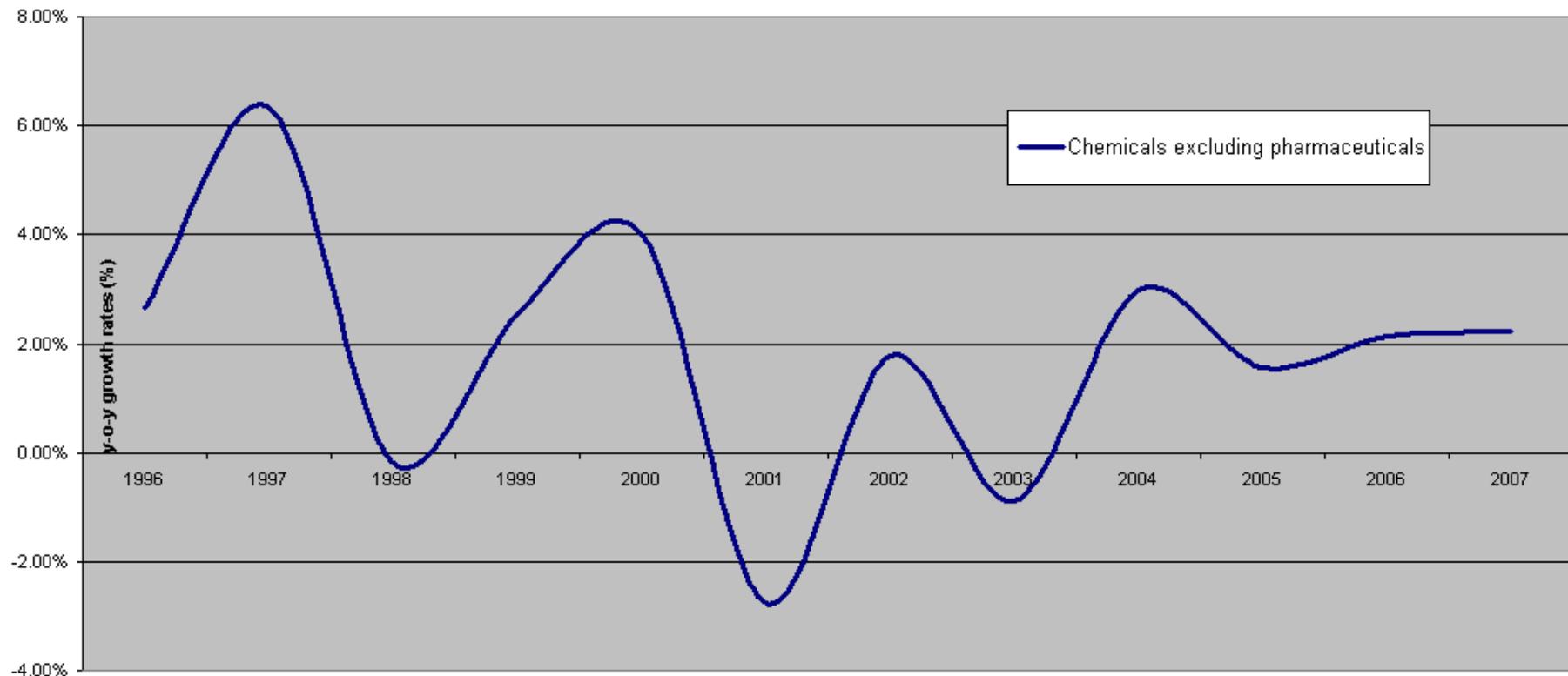
CO2 cost (Euro/tonCO2)

Europe enjoyed a very long growth cycle, which paints an overly positive picture of our industry



- The upswing cycles facilitate industry's capacity to handle additional cost but ...
- Downturn is imminent and will impact on industry's capacity to handle additional cost

Y-o-Y production growth rate of chemicals excluding pharmaceuticals

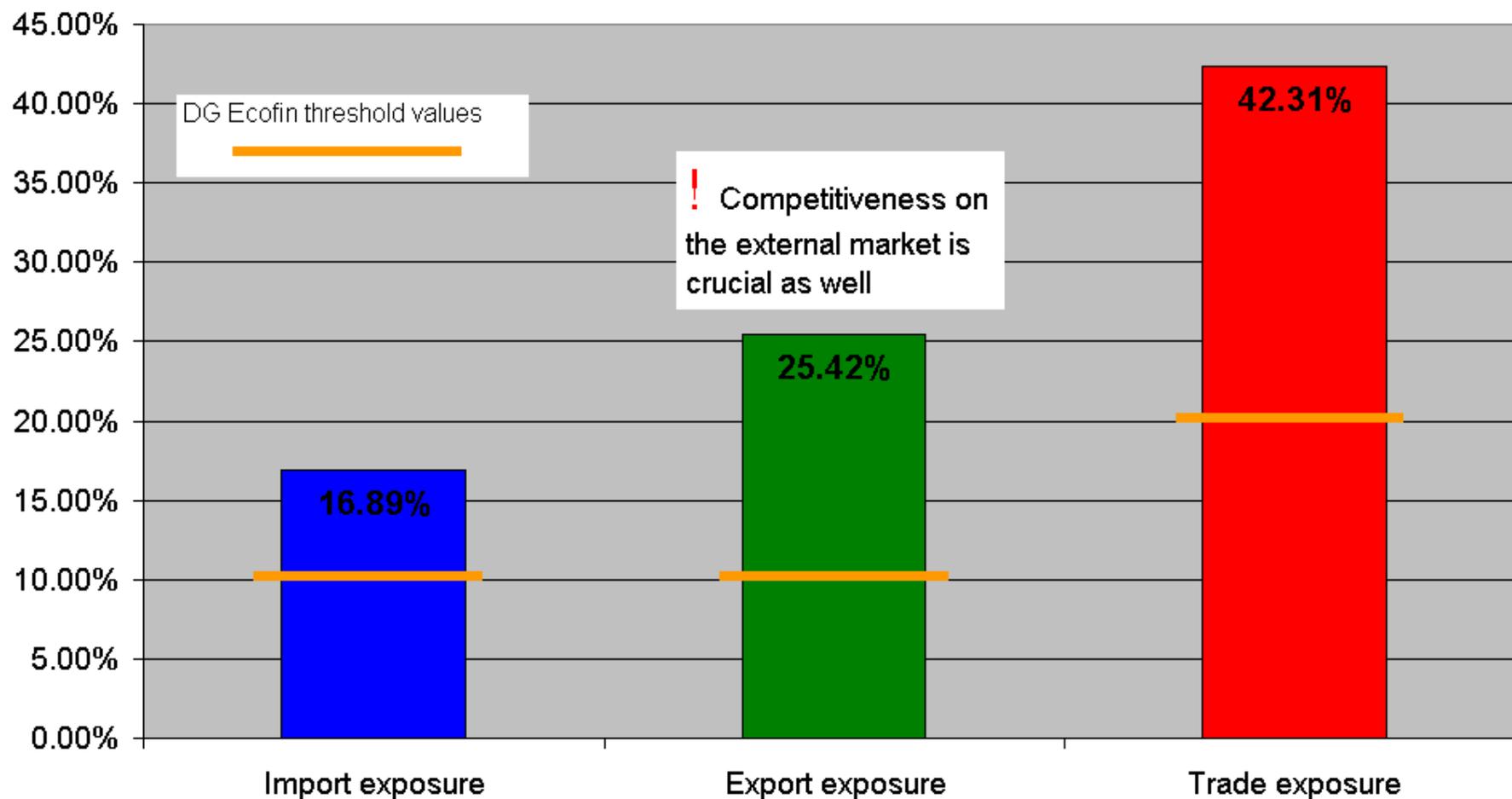


Source: Eurostat and Cefic

Trade flows indicate that the European chemical industry is exposed to international competition



Trade exposure of the EU chemical industry (excl pharmaceuticals)



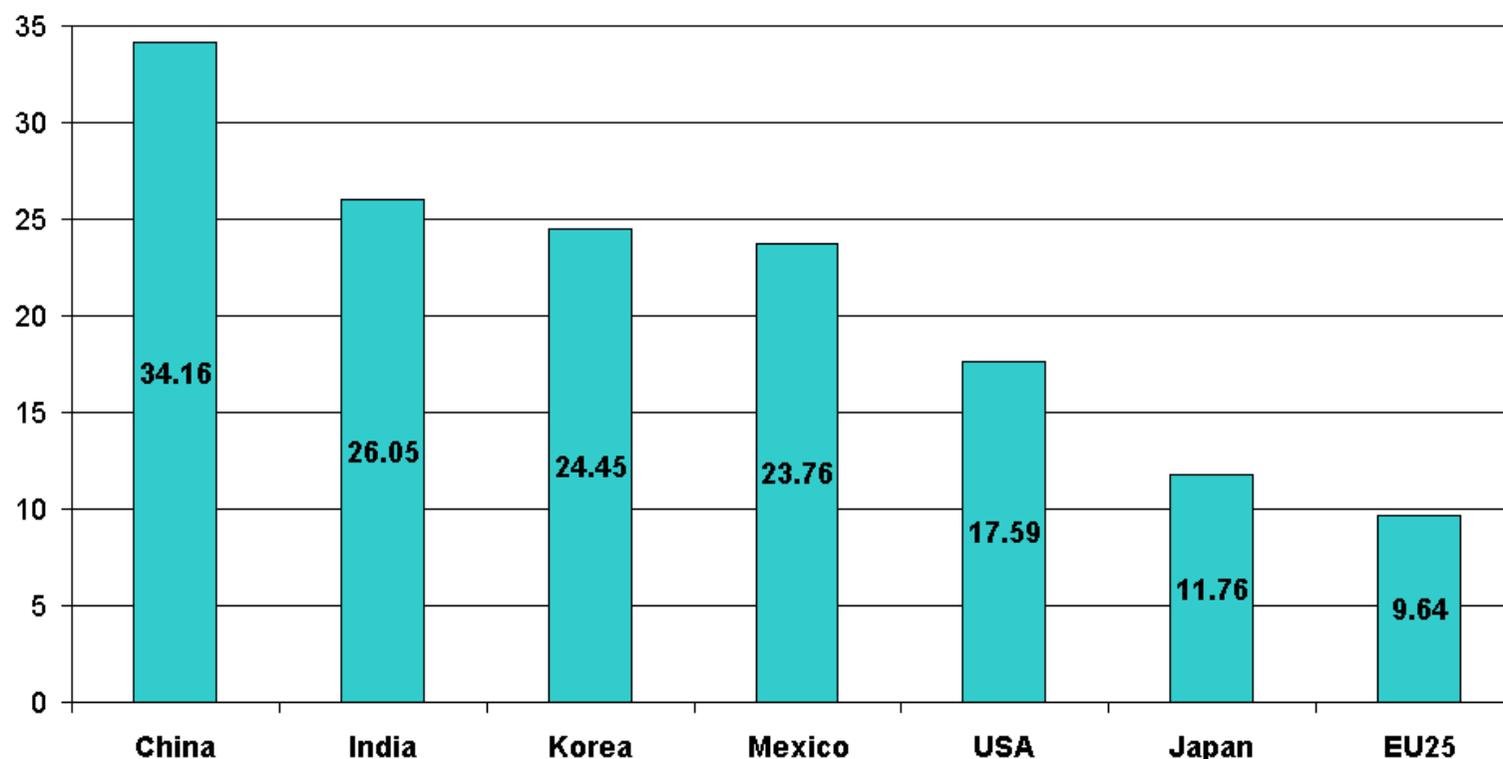
Source: Eurostat and Cefic

The energy intensity of chemicals production around the world shows that Europe is most efficient



- **Moving production outside of Europe potentially increases energy consumption**

Energy consumption per sales in the chemical industry in selected countries



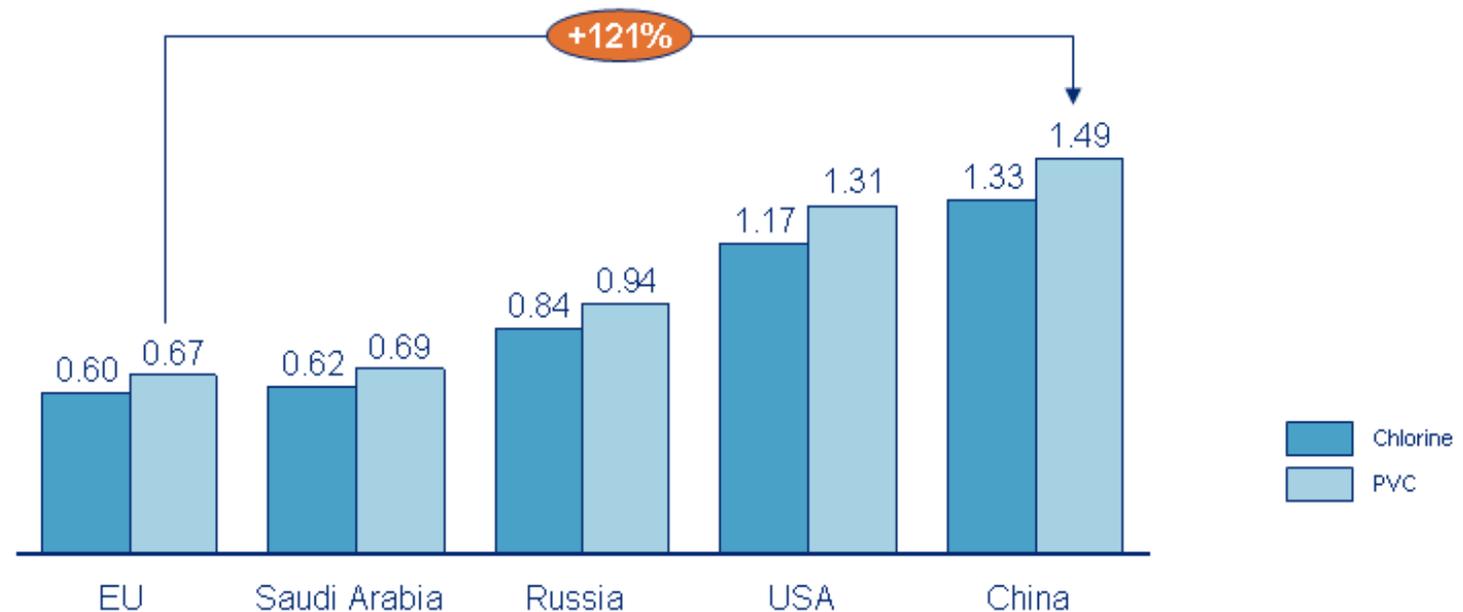
Source: IEA (2007) "Tracking industrial energy efficiency and CO2 emissions", Eurostat and Cefic

The energy mix of the local electricity production influences the carbon footprint of power-intensive chemicals production



Chlorine and PVC require a high amount of electricity in its production processes

Indirect CO2 intensity of Chlorine (mercury process) and PVC (emulsion process) production



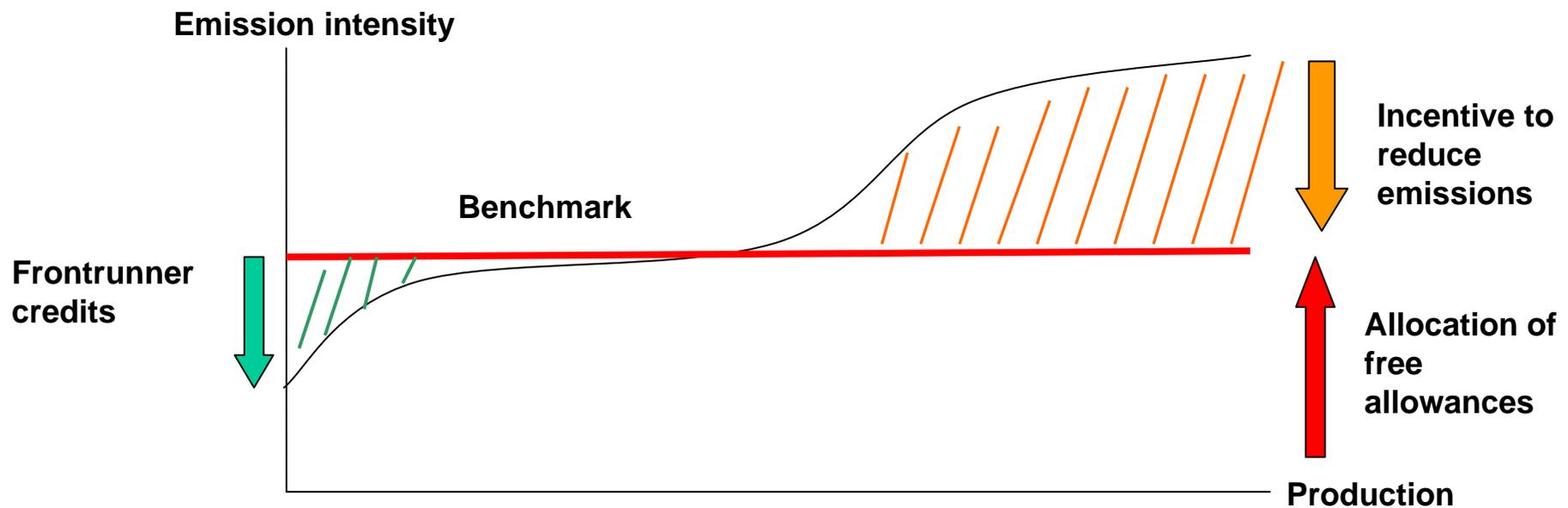
In addition, processes are much more energy efficient in Europe as efforts in this direction have been and continue to be made

Sources: DG Enterprise, IEA, Eurocoal

Benchmark provides same incentive as auctioning to industry allowing for innovation



- Frontrunners receive credits; creates incentive for continuous emission reductions
- Reduced spending on allowances to allow for investment and R&D in cleaner technologies and products



Conclusions



- **The chemical industry messages:**
 - ✓ **Our basic building blocks are energy intensive**
 - ✓ **We are highly integrated**
 - ✓ **We are competing globally and highly exposed to trade**
 - ✓ **We are not able to pass through unilateral cost**
 - ✓ **We are part of the solution to climate change**
 - ✓ **We want to stay in Europe**
- **Auctioning threatens our European manufacturing base**
- **We support a performance-based free allocation in the ETS**
- **We are in line with European manufacturing industries**