



A View From Cefic on the Future Role of CCS



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11 March, 2015



This is Cefic

Since its creation in 1972, Cefic has grown to become one of the largest industry trade organizations in Europe and in the world.

- Representing **29.000** chemical companies in Europe,
- **30** National Chemical Federations across Europe,
- Over **600** direct Company Members from Europe,
- More than **30** Associate Company Members from around the world,
- **40** Partner Companies & Associations,
- **23** European Affiliated Associations,
- Operates **90** Sector Groups focusing on 120+ product families and over **88** Strategy Implementation and Issue Teams dealing with the industry's horizontal issues (REACH, International Trade, Energy & Climate Change, Research & Innovation, ...)
- About **5000** industry experts from companies and federations participate in the Cefic groups,
- Close cooperation with the other regions in the world through ICCA.



THE CHEMICAL INDUSTRY

PUTTING OUR ENERGY NEEDS IN TO CONTEXT

The European Chemical Industry



- 29,000 companies in Europe, 1.2 million direct jobs
- 17% of the world's chemicals
- €558 billion in sales₍₂₀₁₂₎, 2nd largest after China
- 3rd biggest trade surplus of all industry sectors in the EU: €48.7Bn in 2013
- *e.g. Solvay with an annual turnover of around €10bn, spends more than €1bn per year on energy*

The European chemical industry faces a competitive disadvantage in both energy and feedstock costs compared to other regions of the world.

EU chemicals sales nearly double in 20 years, while its world market share halves



■ EU chemicals sales (€ billion)
— World share (%)



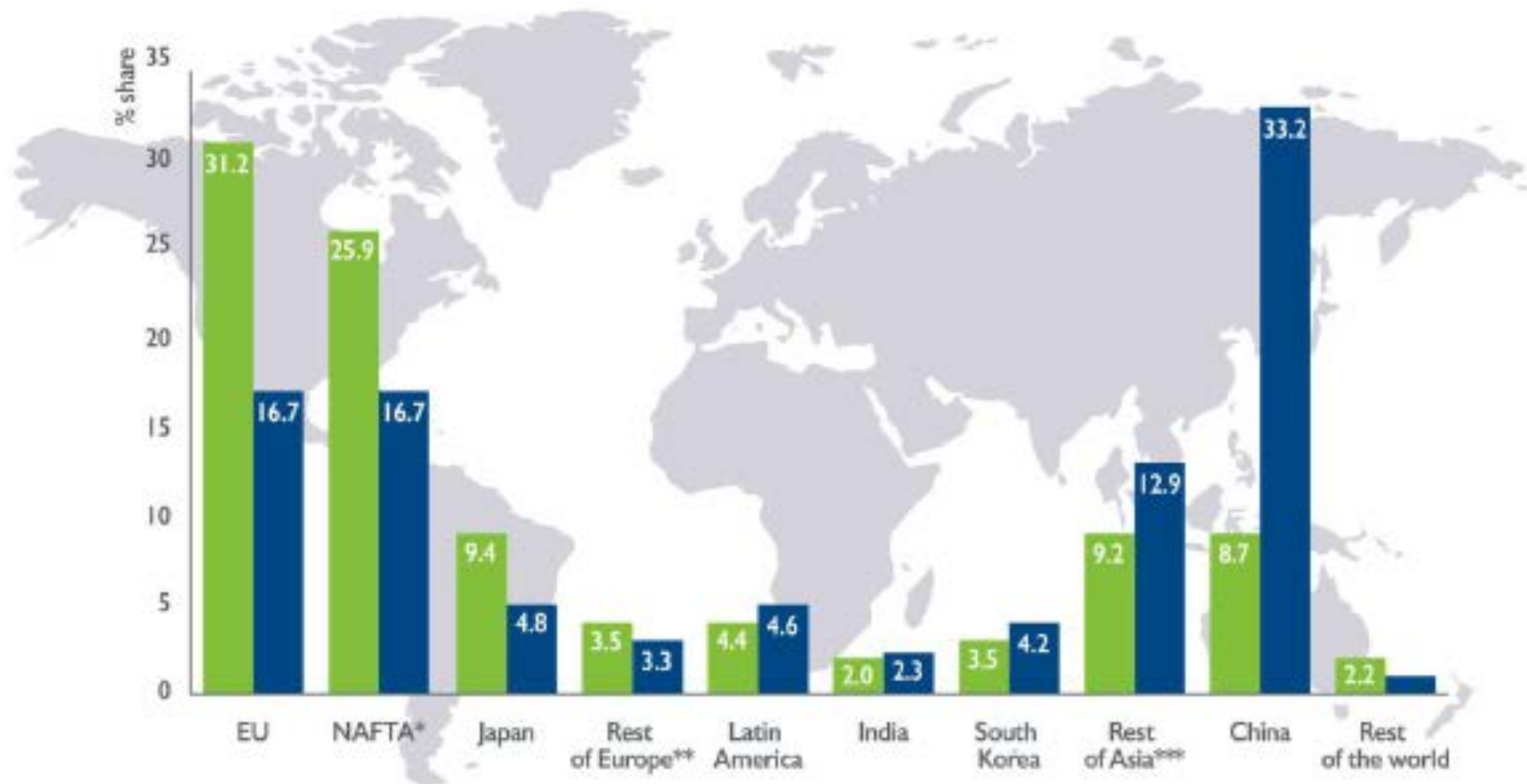
Source: Cefic Chemdata International (2014)

Growth in post-recession Europe remains low, mainly due to mature markets and an ageing population

World chemicals output doubles as emerging markets sales surge



■ World sales 2003: €1,326 billion
■ World sales 2013: €3,156 billion

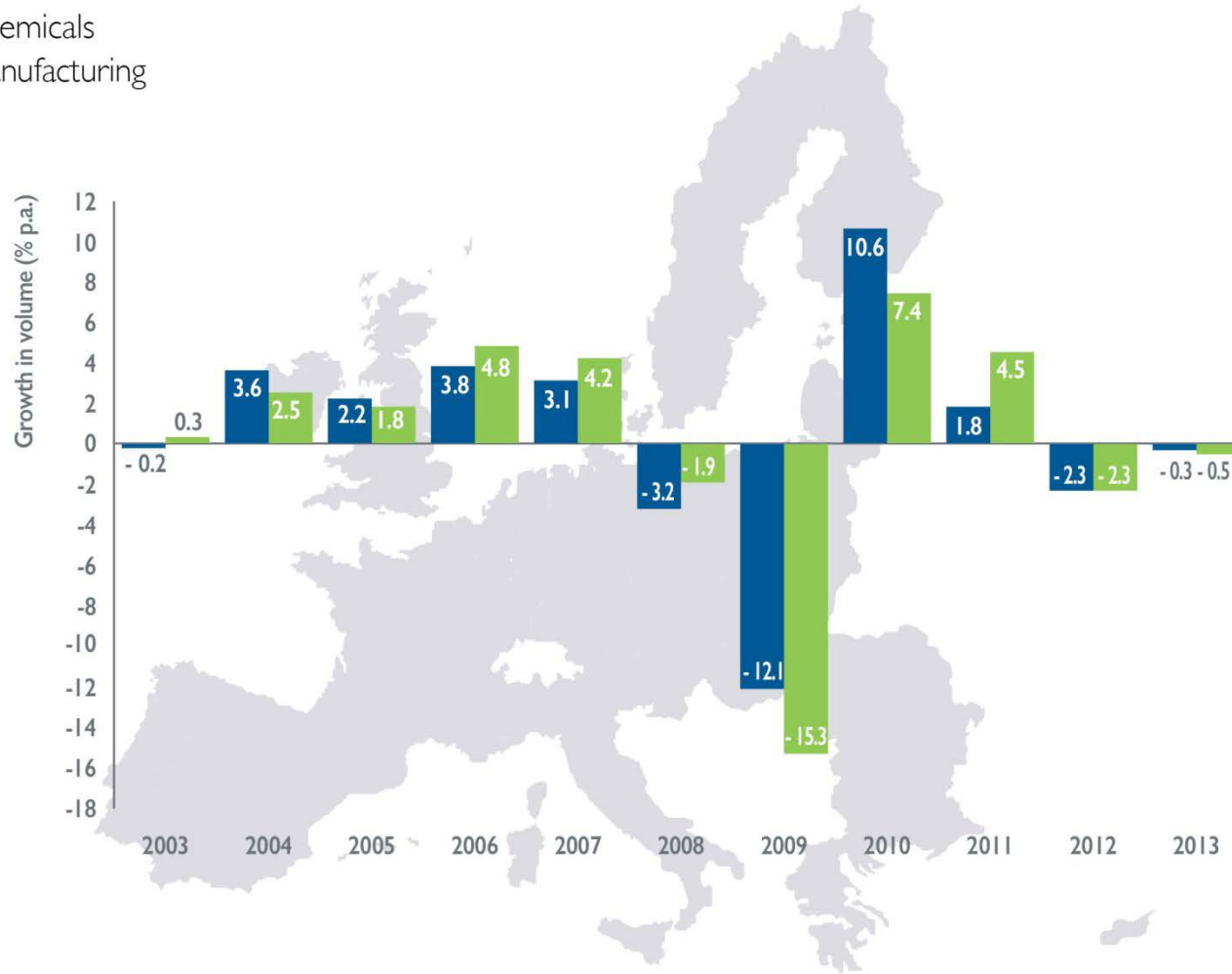


EU leadership need to create competitive framework conditions that enhance the global position of European chemicals

Production stagnant for past two years



- Chemicals
- Manufacturing



Sources: Eurostat and Cefic Chemdata International (2014)

2014 showed a stagnant production & sales, trade agreements (e.g. TTIP) must improve industry access to energy and feedstock at globally competitive prices



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- As an energy intensive industry we need **delivery of uninterrupted, competitively priced, stable and secure energy**
 - This would enable energy intensive industry to be engines for European employment, growth, and competitiveness

How the EU energy landscape looks



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- EU baseload energy supply from fossil fuels and nuclear
 - Greater penetration of renewables on the grid
 - EU2020 targets
 - EU2030 targets (40% GHG, 27% RES, 27% Energy Efficiency)
 - Energy Union

What energy mix for Europe?



- The EU should establish a technology neutral **market-driven level playing field**
- More specifically, any subsidies should only apply to non-mature technologies and for a limited time
- Energy efficiency is an important competitiveness factor for industry
- For CCS, increase business and investor clarity – EC Investment Plan (EC Energy Union, February 2015)



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- Fossil fuels share in the global energy mix will be 55% in 2040 (World Energy Outlook 2014, International Energy Agency)
 - Speed and cost of realising the wider decarbonisation of the EU energy mix has to be framed in reality (economic and global climate change burden)

CCS in the Chemical Industry



- CCS in the EU chemical industry is estimated to account for a possible 21 percent of the total abatement potential, or around 420 MtCO₂e
- Two different CCS technologies are applicable to the chemicals sector
 - the capture of a pure CO₂ stream
 - capture of CO₂
- CCS is a technology that has yet to be tested for use in the chemical industry, and adequate liability and infrastructure programs are not in place yet

CCU: Carbon capture and utilisation



- Chemical industry can use CO₂ as a raw material
- For almost all applications in the chemical industry, the CO₂ needs to be available in pure or highly concentrated form
- CCU could be developed in symbiosis with CCS
- Technology advances for our sector being developed:
 - CCU as a feedstock (organic liquids, gas)
 - Mineral carbonisation (for use in building materials etc)
 - Artificial photosynthesis (breakthroughs needed)

Conclusions



- Balanced energy mix: we need everything!
- Reduction in GHG emissions – energy efficiency
- CO₂ has a value to industry (CCU)

Hurdles to overcome, as we see it:

- Regulatory – ready to try again?
- Market – will follow the money (e.g. Incentivise not subsidise?)
- Public perception
- Technology competition – low-cost development – storage or flexibility?

But!

- We will continue to be dependent (+/-55%) on fossil fuels in the global energy mix in 2040