

# Petrochemicals in Europe

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# Presentation outline

1. Petrochemicals Europe – Who we are
2. Why chemicals do matter
3. The chemical industry in Europe
4. The industry's challenges
5. The consequences
6. The ecological footprint
7. Summary

# 1. Petrochemicals Europe - Who we are

## Petrochemicals Europe - Who we are

- = the association of petrochemical producers in Europe, an industry sector of Cefic
- European producers of base chemicals and derivatives
- ~ 90 members across Europe with 25% SMEs representing 90% of EU28 market
- Our vision: The petrochemical industry to be recognised as the foundation of future economic success in Europe, fuelling innovation, manufacturing and employment

# Our Full & Affiliated members are:



## As the voice of the European petrochemical industry, we

- Advocate for conditions that will allow the industry to operate successfully in a highly competitive global environment.
- Raise awareness of the contribution of our industry to the European economy which provides essential raw materials for thousands of products produced by diverse industries, driving innovation and creating employment.
- Engage continuously with all our stakeholders in the pursuit of sustainable solutions.

## 2. Why chemicals do matter

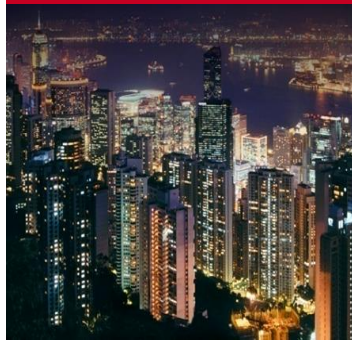
## Health & Nutrition



### 9 billion people will live on earth by 2050!

- How can we guarantee food and water supply for everyone?
- What are possible benefits and contributions of plant science?

## Construction & Housing



### 67% of the world population will live in cities by 2025!

- What does future architecture look like?
- Which materials are needed to make energy consumption more efficient?

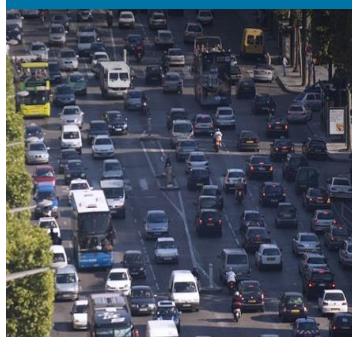
## Energy & Resources



### 50% more primary energy needed in 2030!

- What is the ideal energy mix of the future?
- How big is the stake of renewable energy?

## Mobility & Communication

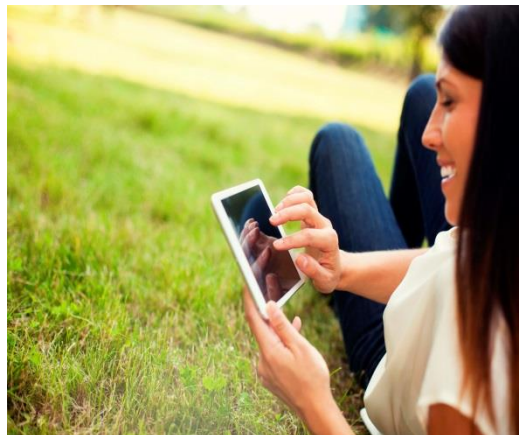


### 1.2 billion cars will drive on earth by 2020!

- How can we reduce emissions and fuel consumption ?
- What will future cars be made off ?



- 95% of all manufactured goods are based on petrochemicals, such as electronics, furniture, appliances, textiles, and many more
- benefits: sustainable solutions to energy savings and comfort, for example insulation, durable, light-weight and resistant composites, etc.



... but:

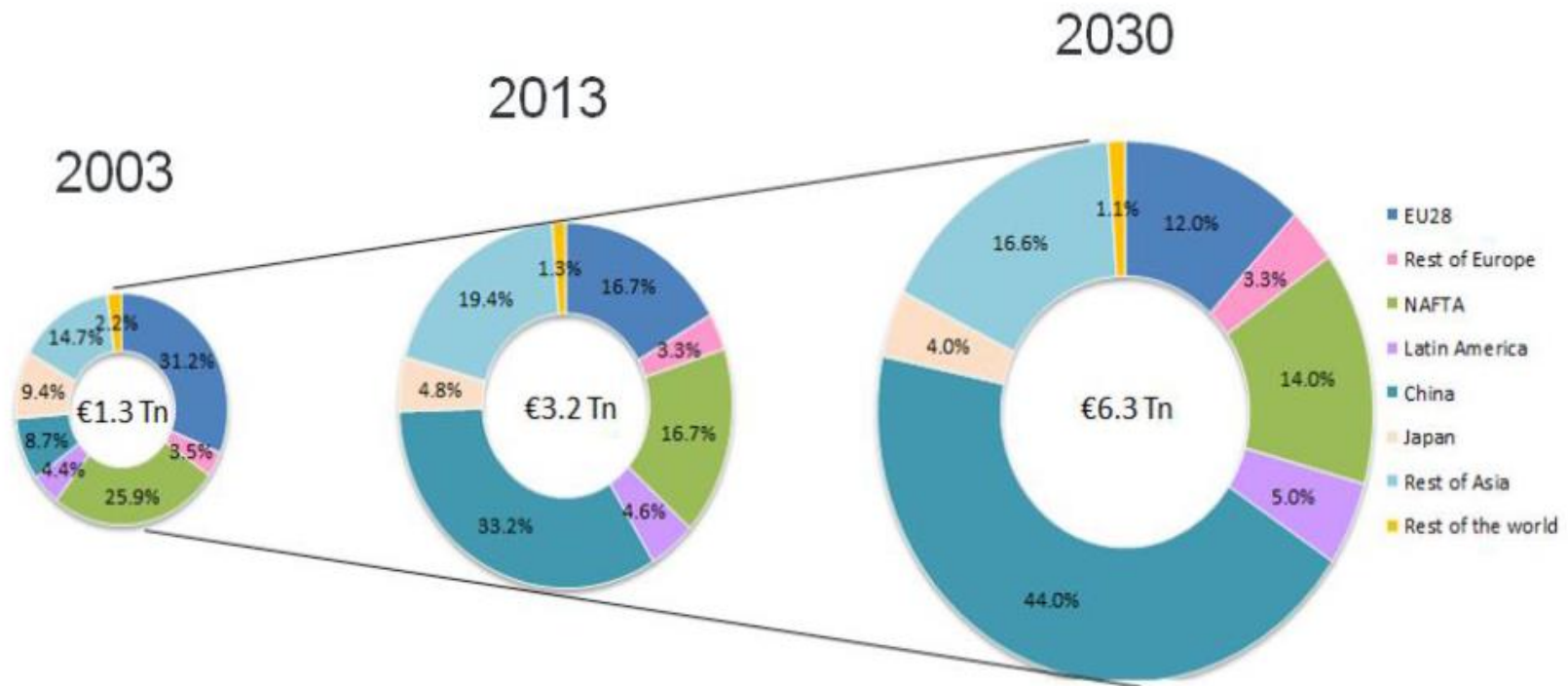
- Highly exposed to international competition (commodity business)



### 3. The chemical industry in Europe

# Chemicals market size: Global chemicals production (trillion €)

Global chemicals production in value (€ Trillion)



**Markets are growing strongly – Europe loses share**

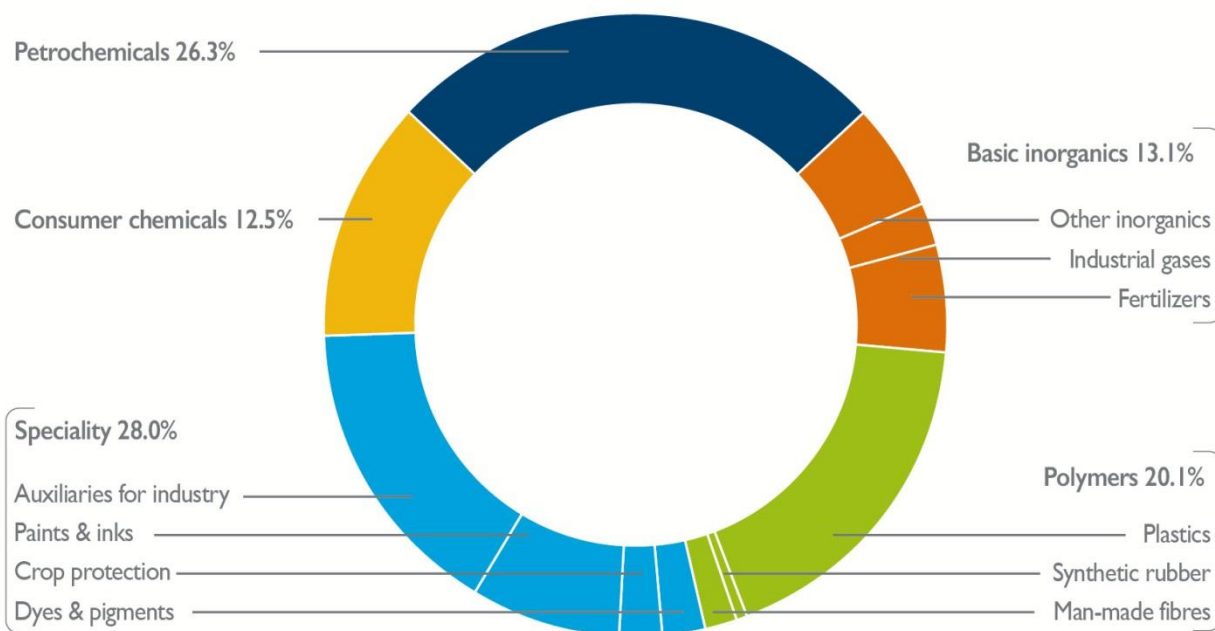
Source: Cefic Chemdata International and Cefic analysis

CAGR World 4.1 % (2013-2030)

Petrochemicals and specialty chemicals account for half of EU chemicals sales

EU chemical industry sales by sectoral breakdown

Sales 2015 (€519 billion)



**Petrochemicals are an important industry segment and mark the starting point of almost all chemical value chains.**

# The petrochemical industry in Europe - A short portrait

Refineries and steam crackers in EU-28



© Petrochemicals Europe 2016

Red bullet points: Steam crackers  
Reds stars: Refinery plus steam cracker

- More than 50 steam crackers in operation in EU 28
- > 300,000 direct employees; 1,2 million incl. multiplying effects
- Contribution to overall European GDP: 155 bn € (= 155,000,000,000 €)
- Energy intense: > 80% of production costs related to oil & gas as feedstock and energy
- Capital-intensive (steam cracker > 1,5 bn €)

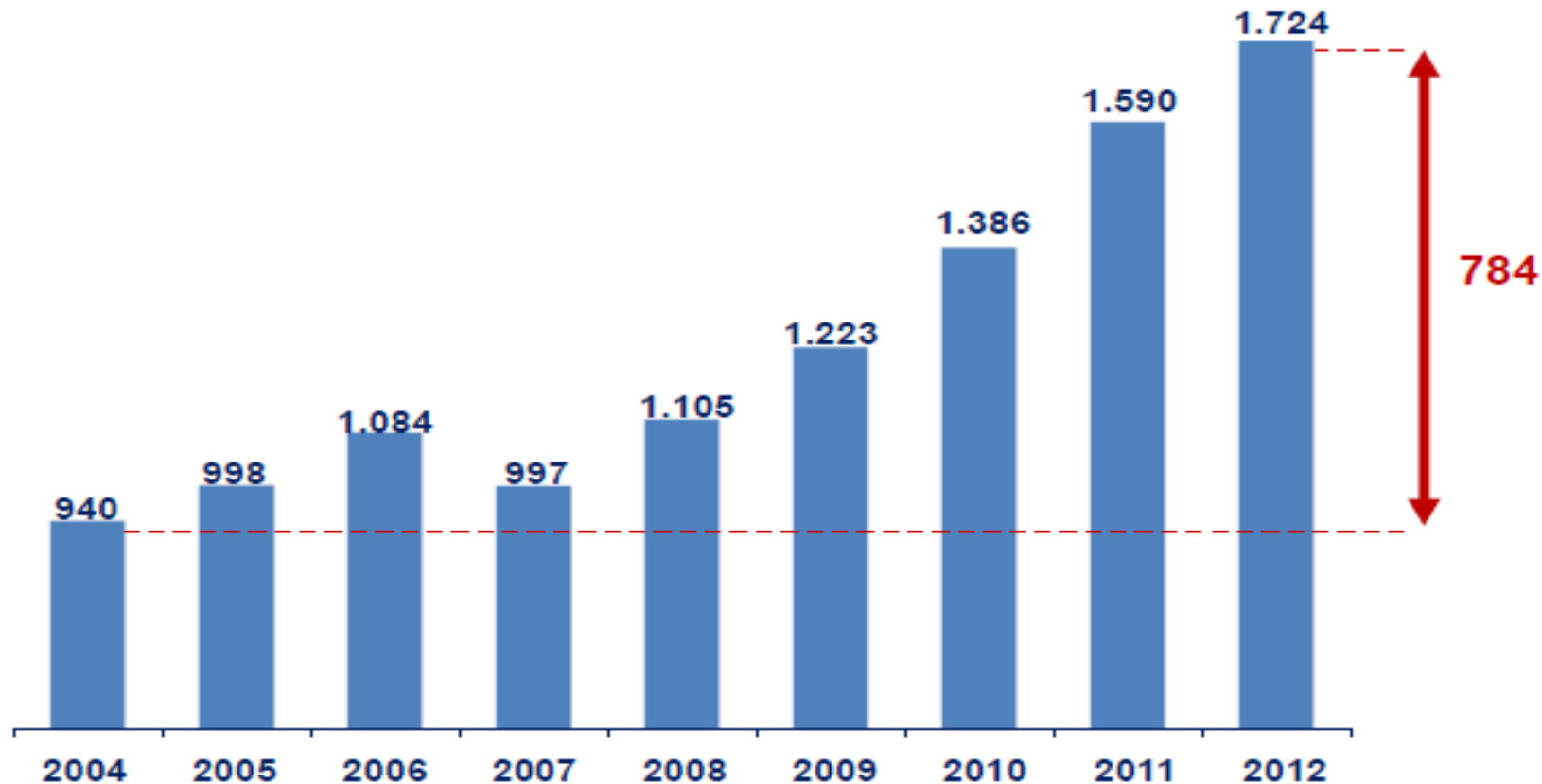
## 4. Challenges and uncertainties

# Challenges and uncertainties

- Brexit
- Oil price
- Electricity price
- Regulation



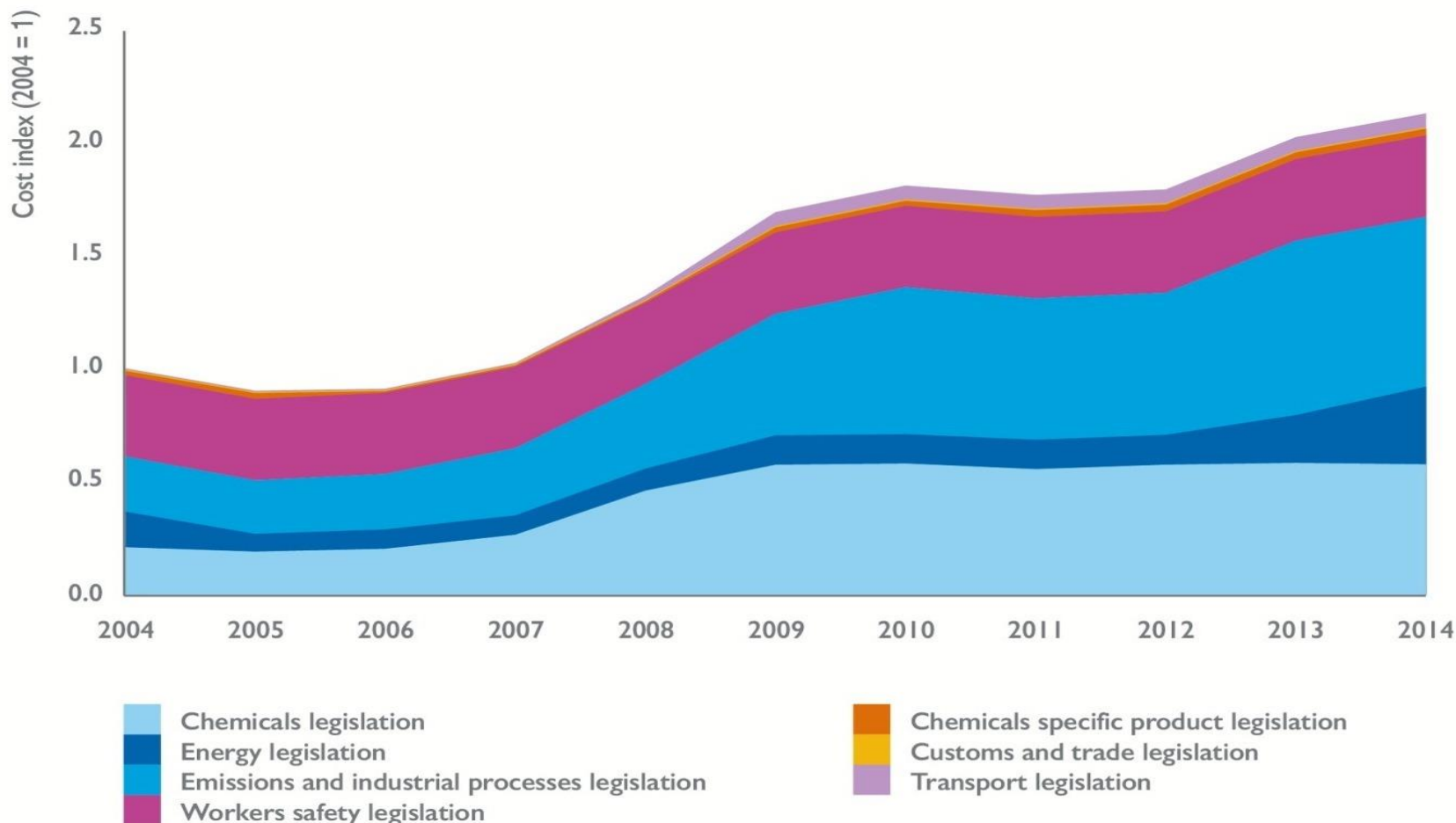
## Cumulated number of EU regulations on Health, Safety and Environment (net of abrogation)



Source: EU, Directory of EU legislation in force  
(Chapter 15 – Environment, consumers and health protection)

# Regulatory costs in Europe are steadily rising

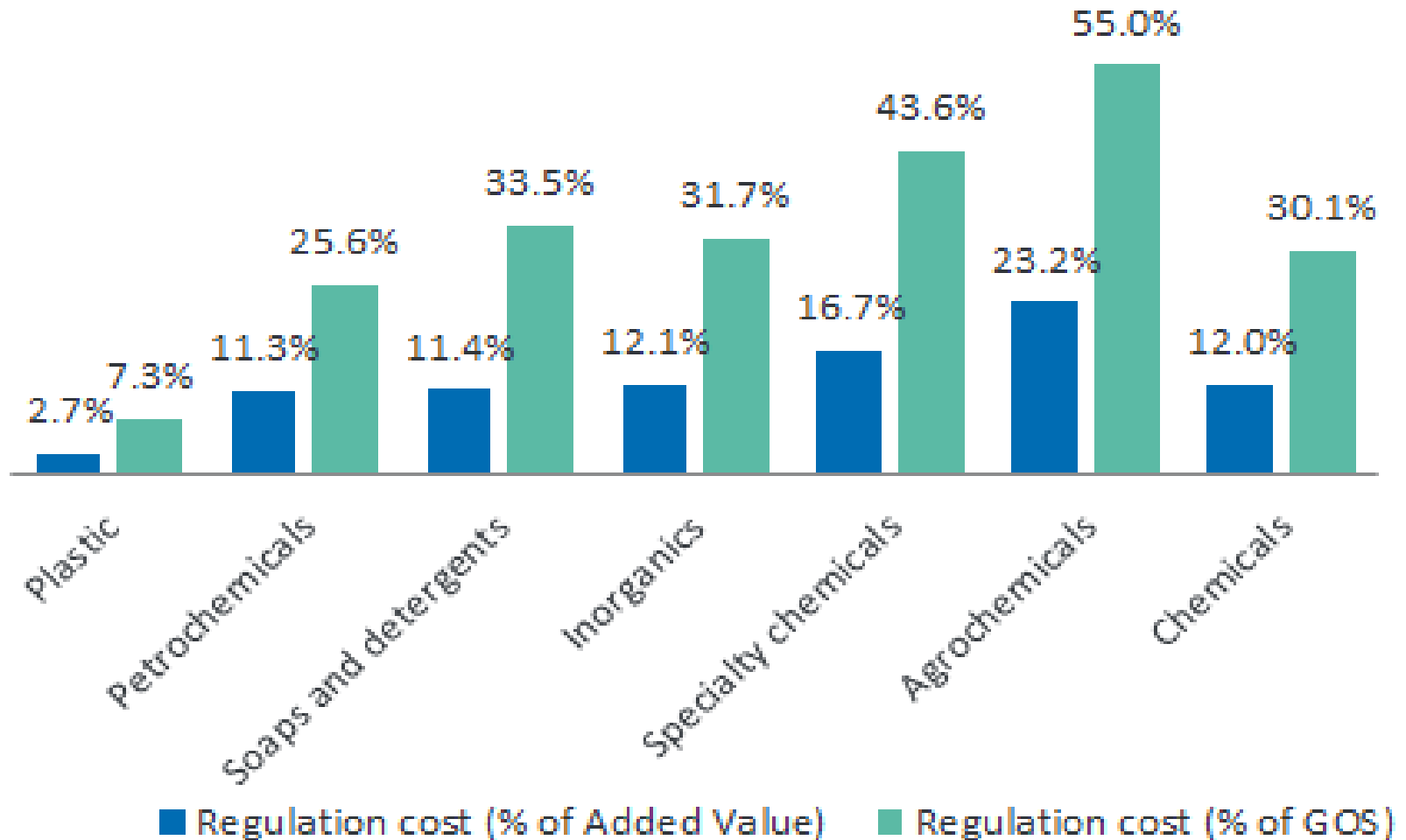
Major milestones: REACH (2007), CLP (2008), Seveso III (2012) and ETS Phase 3 (2013)



\* Source: CCA by EU Commission, DG Grow, Technopolis, December 2015

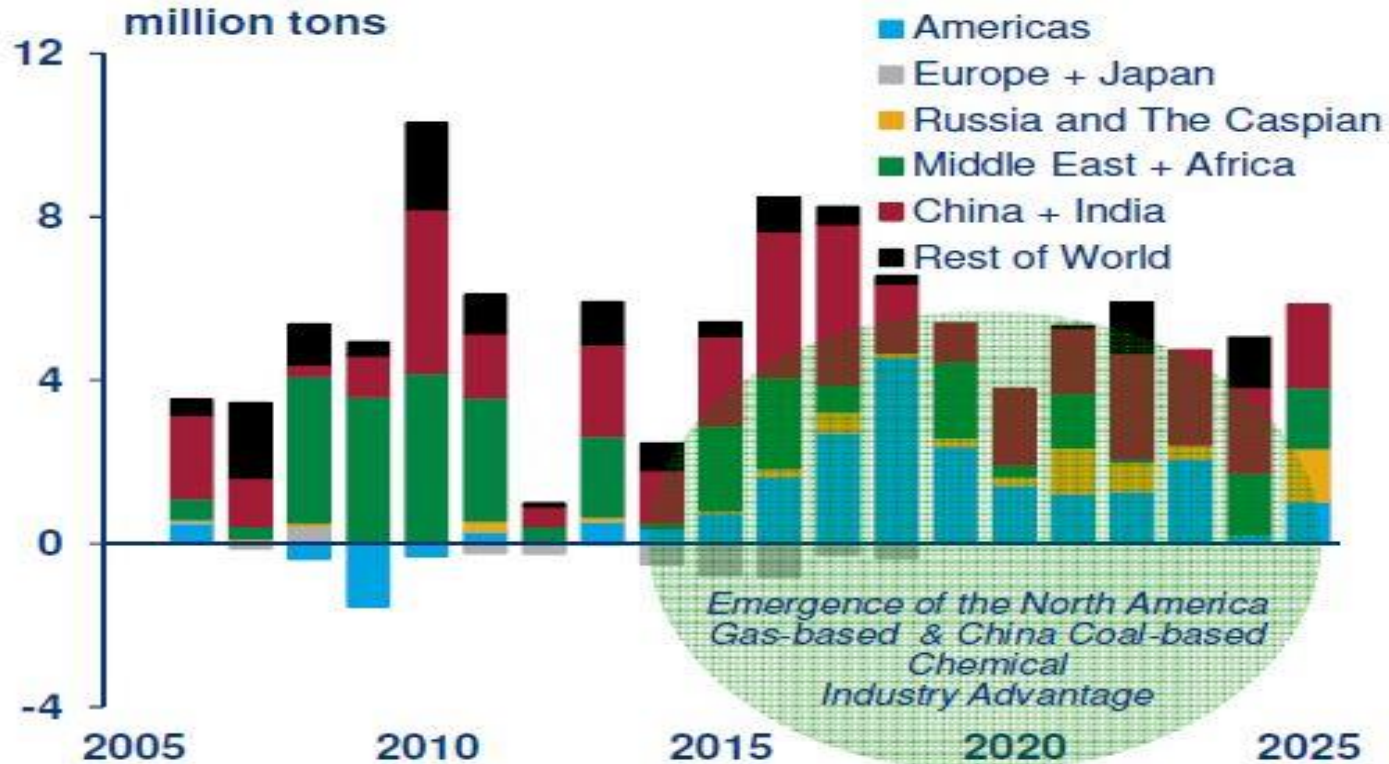
## 5. The consequences

# Regulatory costs eat a significant part of the profits up



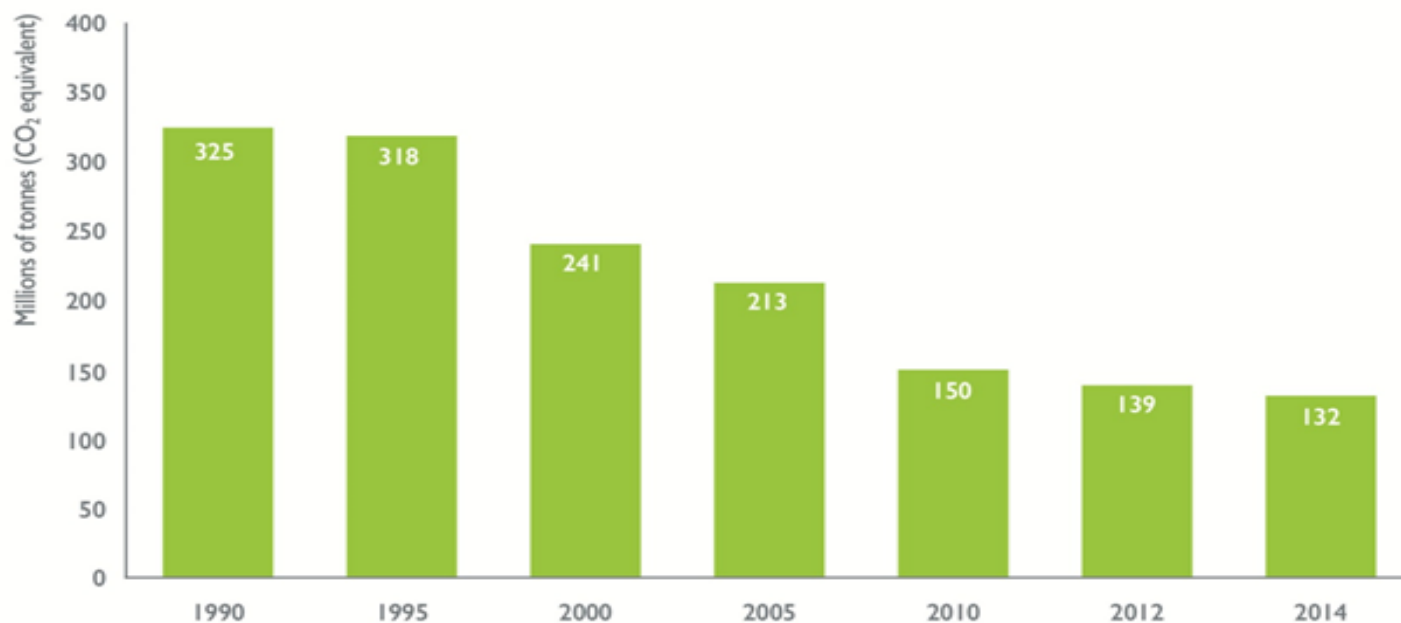
\* Source: CCA by EU Commission, DG Grow, Technopolis, December 2015

## Global Ethylene Capacity Additions



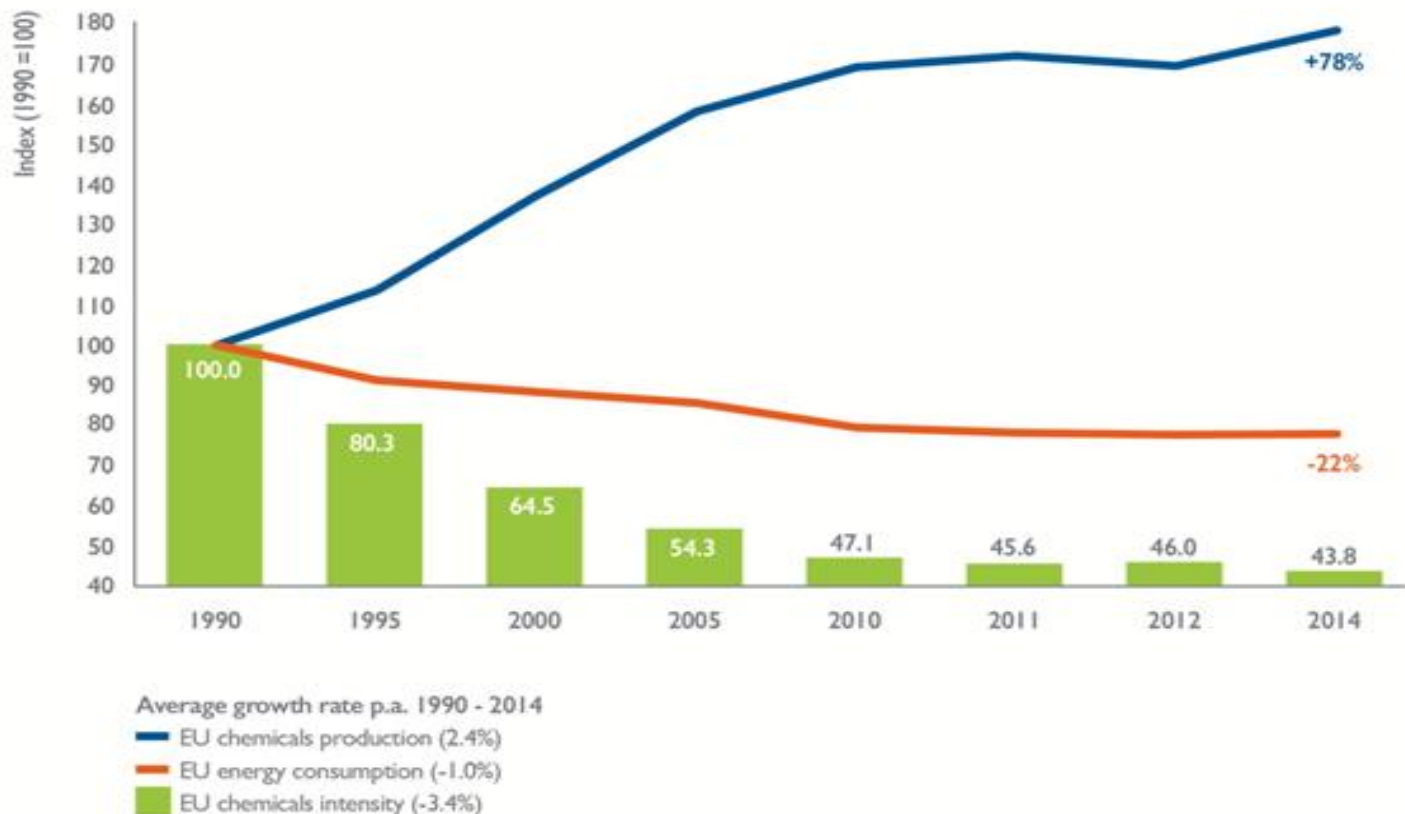
## 6. The ecological footprint

## Total greenhouse gas emissions in the EU chemical industry



Source: European Environment Agency (EEA) and Cefic analysis

The eco footprint of the chemical industry has substantially improved:  
- 60% GHG emissions!



Source: Eurostat and Cefic analysis

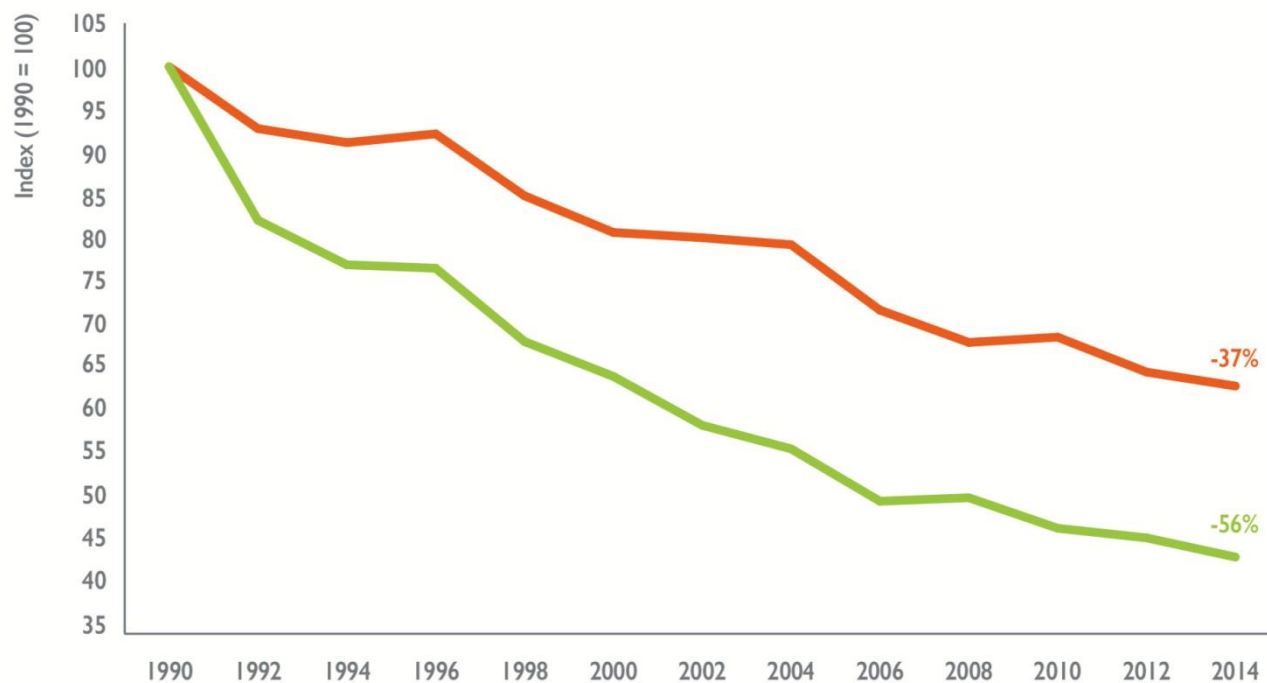
\* Energy intensity is measured by energy input per unit of chemicals production (including pharmaceuticals)

~ 60% less energy consumption, + 80% more production in the same period



... is significantly better than industry average.

Energy intensity: chemicals\* vs total industry



Average growth rate p.a. (1990 - 2014)

— EU industry intensity (-1.9%)

— EU chemicals\* intensity (-3.4%)

# 7. Summary

## Competitiveness Pros and Cons for Europe

- ☺ Large **integrated domestic market** with strong customer industry clusters
- ☺ Until now availability of **skilled and motivated workers** and scientists
- ☺ Continued strategic **restructuring** efforts (flexibility to globalised markets)
- ☺ **Strong innovation** efforts to generate new growth clusters and solve upcoming societal mega challenges
- ☹ Low demand growth for chemicals in general: **elderly population, shrinking working age classes**, high saturation levels
- ☹ **High energy and feedstock costs** vs. Middle East and U.S.
- ☹ High **regulatory compliance** costs: e.g. REACH, Seveso, IED, 7th EAP...

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