The Perspective of a Sector - Chemicals

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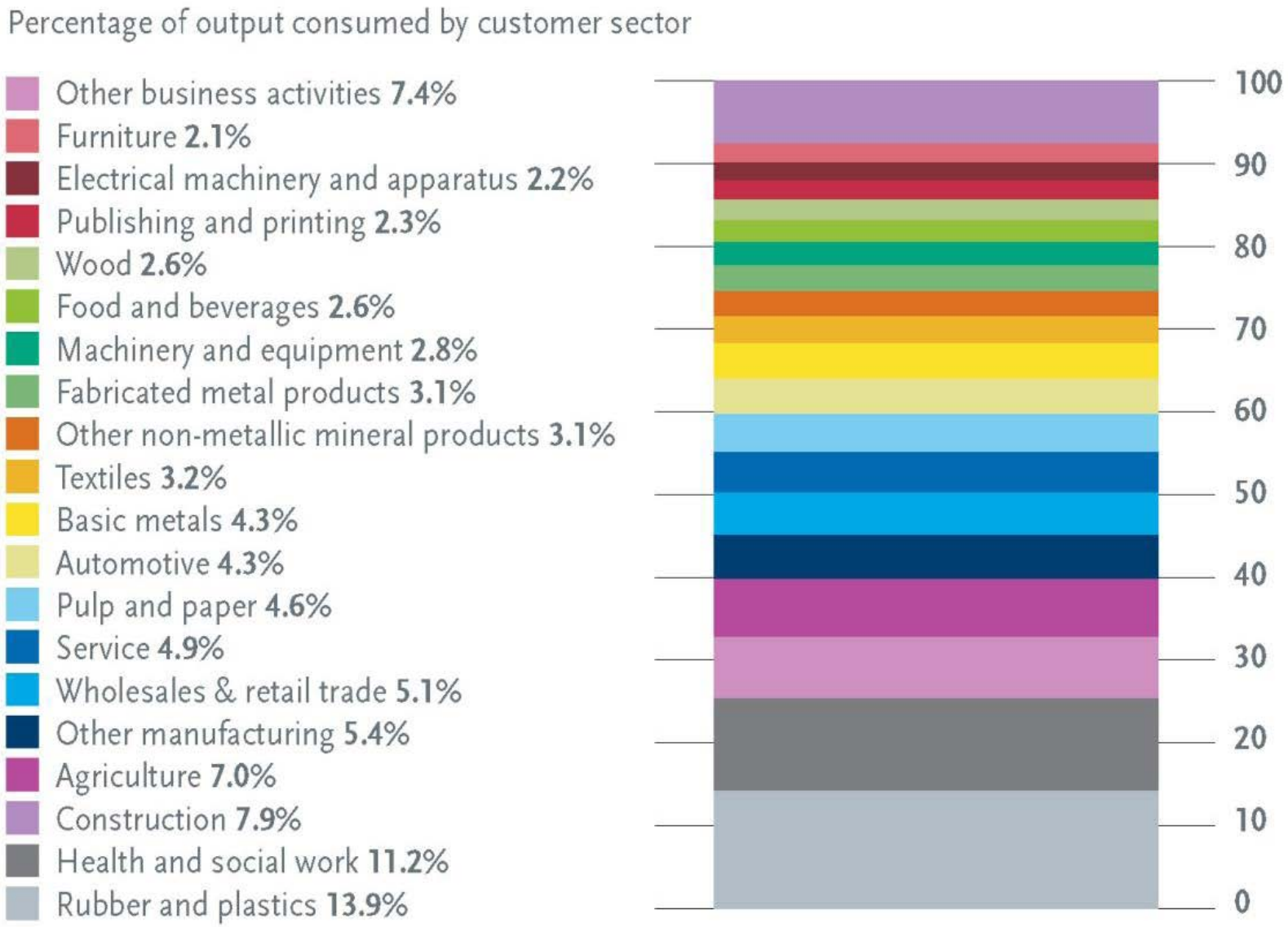
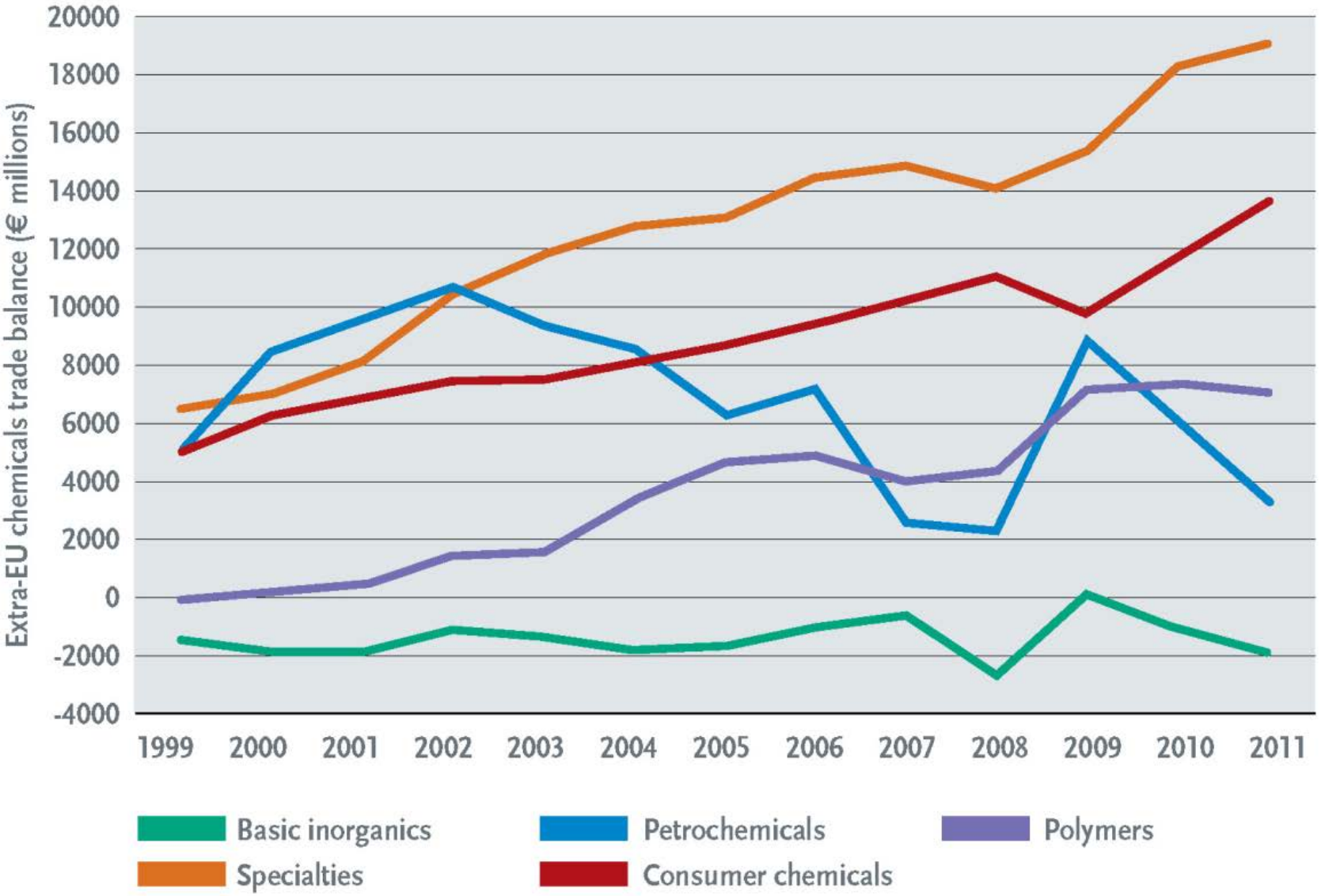
Output of the chemical industry by customer segment for EU-27 based on Eurostat data Input-Output 2000 (Cefic, 2012a)



EU chemical trade surplus by subsector (Cefic, 2012a)



Coverage of the Chemical Sector in the EU ETS

- **Production of nitric acid - CO_2 and N_2O**
- **Production of adipic acid - CO_2 and N_2O**
- **Production of glyoxal and glyoxylic acid - CO_2 and N_2O**
- **Production of ammonia - CO_2**
- **Production of bulk organic chemicals by cracking, reforming, partial or full oxidation or by similar processes, with a production capacity exceeding 100 tonnes per day - CO_2 and N_2O**
- **Production of hydrogen (H_2) and synthesis gas by reforming or partial oxidation with a production capacity exceeding 25 tonnes per day - CO_2**
- **Production of soda ash (Na_2CO_3) and sodium bicarbonate ($NaHCO_3$) - CO_2**
- **Production of carbon black involving the carbonisation of organic substances, such as oils, tars, cracker and distillation residues, where combustion units with a total rated thermal input exceeding 20 MW are operated - CO_2**

Chemical Sector – number of installations and free allocation – ref. *l'actualité chimique 2013*

	No. of Installations	Allocation (Mt CO2eq)
Netherlands	21	87.6
France	62	82.6
Germany	90	55.4
Spain	62	48.7
UK	42	42.1
Romania	6	22.9
Sweden	14	11.2
Ireland	16	7.4
Bulgaria	5	3.6
Finland	4	1.6
Denmark	6	1.5
Portugal	3	1.4
Luxembourg	2	0.6
Greece	1	0.2
Slovakia	1	0.02
Poland	1	0
TOTAL	336	366.9

What did industrial emitters expect from the EU ETS ?

- **Flexibility to meet commitments (*at lowest cost*)**
- **Decrease of uncertainty**
- **Visibility / predictability**
- **Confidence**
- **Effectiveness: Resistance to carbon leakage**
- **Fully harmonized governance**

BUT, what are we finding….?

Back to fundamentals: What is ETS for the industrial compliant emitters?

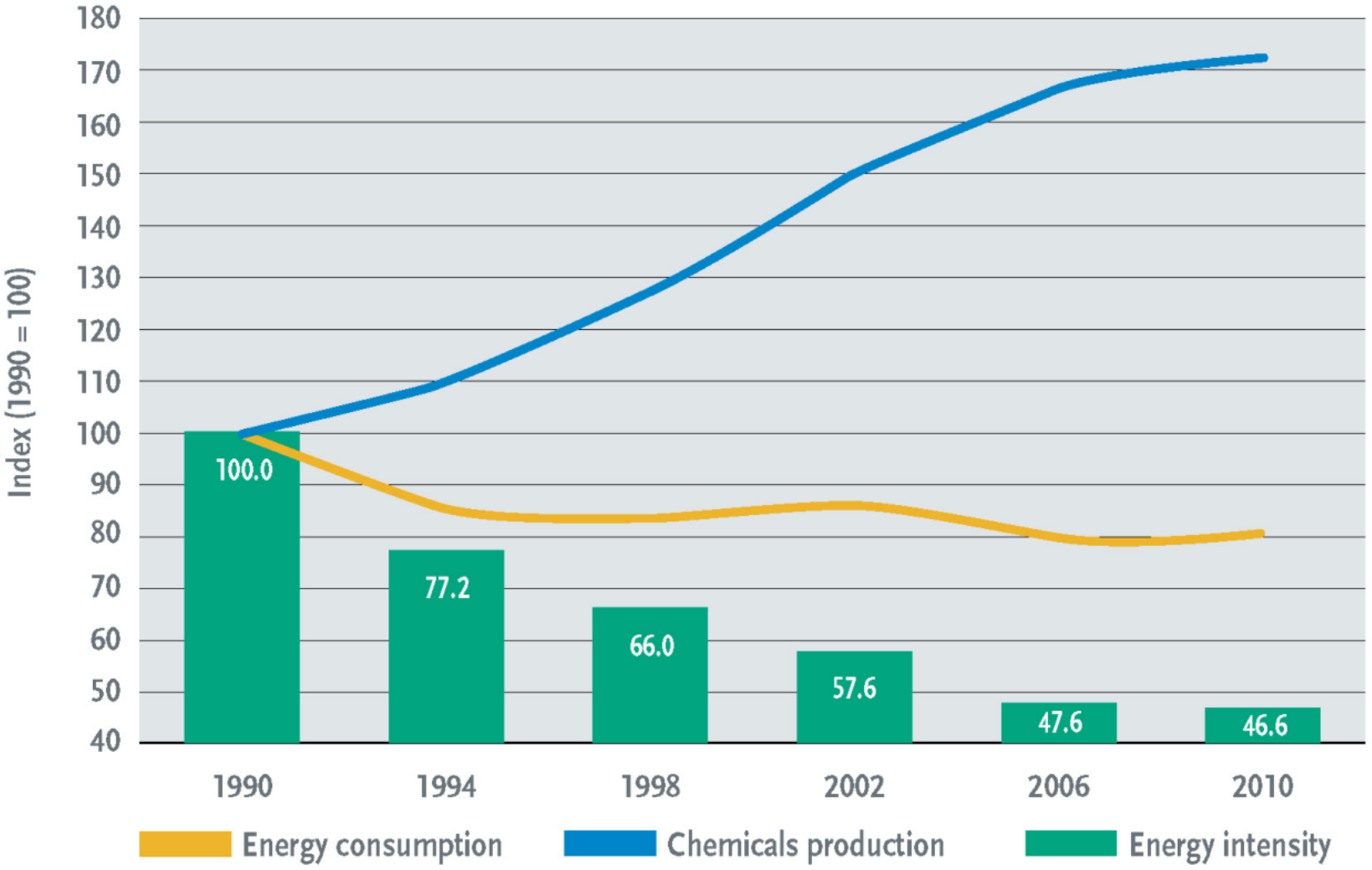
- **It is not a market opportunity, but an operating cost of being in Europe!**
  - **CO_2 cost is included in the manufacturing cost:**
  - **Not as a fixed cost, but as a <u>variable cost</u>, <u>in a double dimension:</u>**
    - **Proportionate to CO_2 volume emitted**
    - **Changing according to market value (primary & secondary markets)**
  - **CO_2 cost is also included in electricity price**

Back to fundamentals: What is ETS for the industrial compliance emitters?

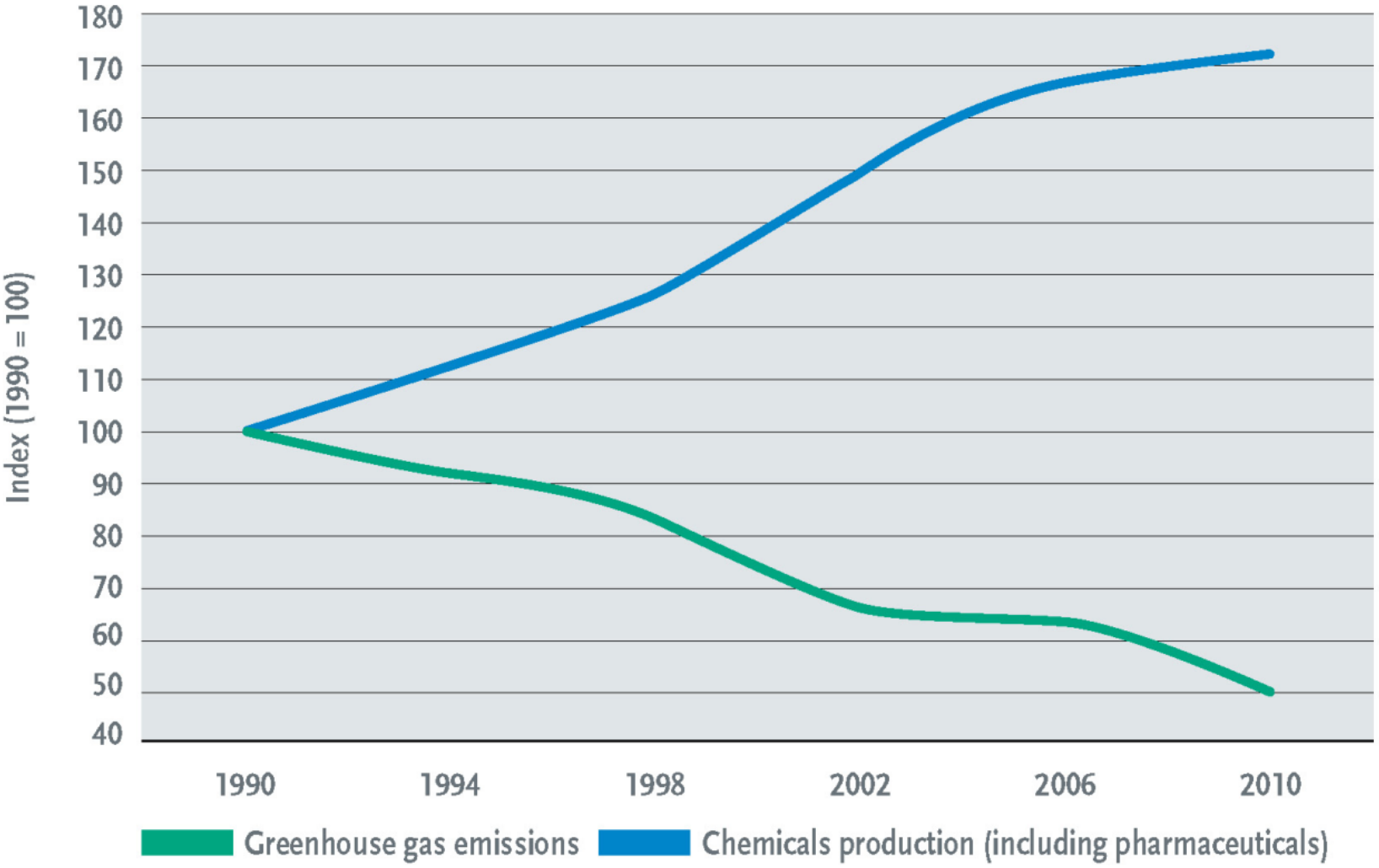
- **Do not add costs to costs**
  - **Industry is already left with considerable extra-costs for EUAs acquisition / capital expenditures**
  - **High risks of carbon leakage (fertilizers, petrochemicals…)**
  - **Negative impact on investment for new projects within EU**
  - **Lots of implementing regulations: Carbon leakage list, benchmarking, backloading, correction factor**

But, how have we responded to this challenge….?

Development of chemical production (production index based on value in constant prices), energy consumption and energy intensity (indexed, 1990 = 100, Cefic, 2012a)



Development of chemicals production (production index based on value in constant prices) and GHG emissions (indexed, 1990 = 100, Cefic, 2012a)



But, what can we do….?

CEFIC Roadmap 2050 - Key findings in a nutshell

- Chemical industry products enable significant improvements in energy efficiency and GHG emission reductions in all sectors.
  - ***Production in 2010 is estimated to contribute to 1,500 Mt CO_2 of avoided emissions during use, equivalent to ~40% of Europe's annual emissions***
- Competitiveness of entire European chemical industry value chain threatened due to diverging energy and policy costs.
  - ***In case of unilateral action to reduce GHG emissions, Europe would become a net importer of chemicals before 2030***
- In a global playing field scenario, energy efficiency, N2O abatement and changes in the fuel-for-heat mix could result in 15% absolute reduction of GHG emissions in 2030 vs. 2010 (e.g. 30% decrease in GHG emission relative intensity). All options rely on innovation.
  - ***GHG emissions reductions of 49% achieved in 2009 vs. 1990***
- Deeper reductions technically possible by power sector decarbonisation, CCS
  - ***Both options costly, face several barriers that are largely outside chemical industry control***

Options in more detail

- Evolution of the feedstock towards a lower use of fossil feedstock, such as the use of bio-based resources, recycled materials and CO_2 as feedstock
- Further process energy efficiency improvements and improvements to auxiliary processes on chemical sites represent the second group of options
- Heat sources and on-site energy generation options, such as lower carbon fuels and the use of Combined Heat and Power
- Abatement of N_2O emissions, for example, from nitric acid production and capturing and storage of CO_2 from process streams and flue gases

And, what do we need….?

A Thought-Through - Structural Reform of the Climate and Energy Package

- An international climate change regime!
- Gear the climate package to competitiveness
  - Optimise/Remove overlaps between ETS, Renewables and Energy Efficiency Directives
  - Align package with 2015 international agreement (and actions)
- (Re-) evaluate the following:
  - Ex-post allocation
  - Non-harmonised compenstaion for electricity use
  - The ‘top-10%’ benchmark
  - CSF (cross-sectoral correction factor) for incumbents and LRF (Linear Reduction Factor) for new entrants
  - Consider using New Entrants’ Reserve (NER) is used to balance the market
  - Give certainty on carbon leakage status

THANK YOU