

# Energy audits and energy efficiency in SMEs: experiences from the Chemical Industry



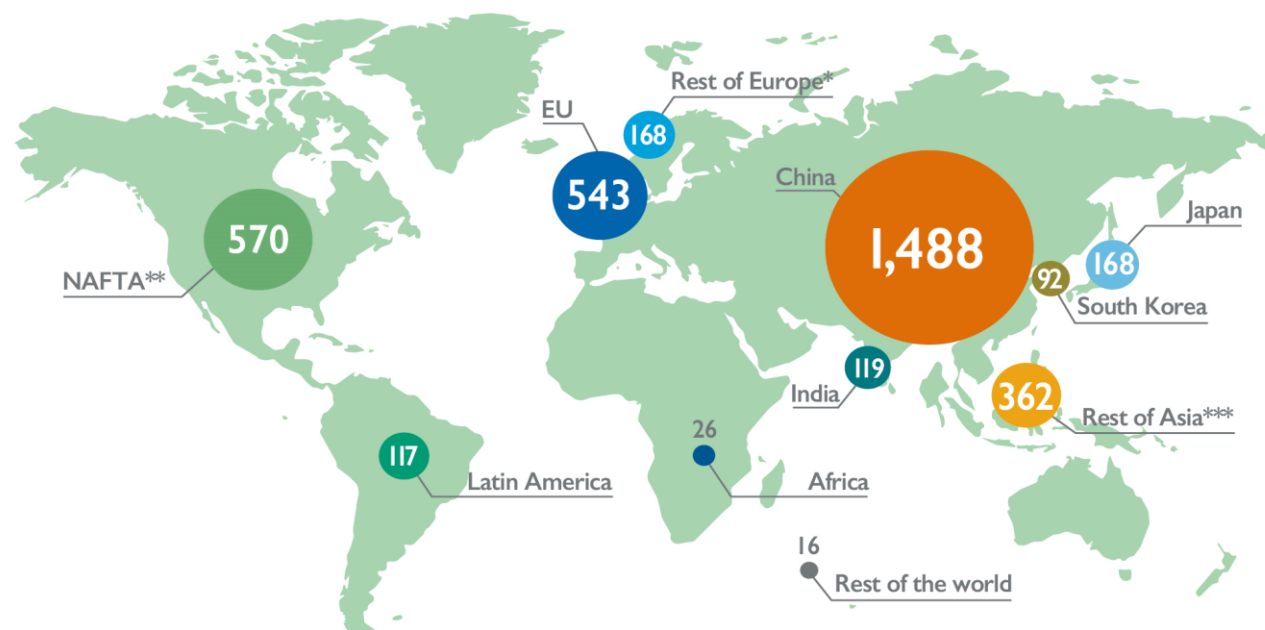
Nicola Rega  
Energy Director

11 June 2021, LEAP4SME Event  
EU Sustainable Energy Week



# Europe is the second largest chemicals producer in the world

World chemical sales (2019, €3,669 billion)



Source: Cefic Chemdata International 2020

\* Rest of Europe covers UK, Switzerland, Norway, Turkey, Russia and Ukraine

\*\* North American Free Trade Agreement

\*\*\* Asia excluding China, India, Japan and South Korea

Unless specified, chemical industry excludes pharmaceuticals



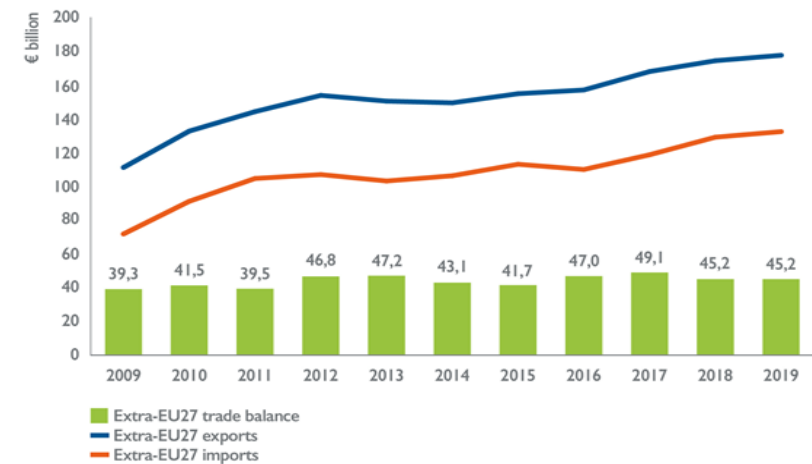
# At the Heart of European Industry

## *Providing the essentials*

- **€543** bn in EU27 **sales** (2019)
- EU27 chemical **trade surplus of €45,2** (2019)
- One of the largest investors in EU27 manufacturing (**€21,5** bn, 2019)
- Network **of more** than **5,000** chemical industry **experts**

*Extra-EU27 Chemicals Trade Flows  
(€ billion)*

Extra-EU27 chemicals trade balance



Source: Cefic Chemdata International 2020

Unless specified, chemical industry excludes pharmaceuticals

Europe -  
a world  
player:  
world  
chemicals  
sales by region

Chemicals:  
the leading EU  
manufacturing  
sector in terms  
of value-added  
per employee

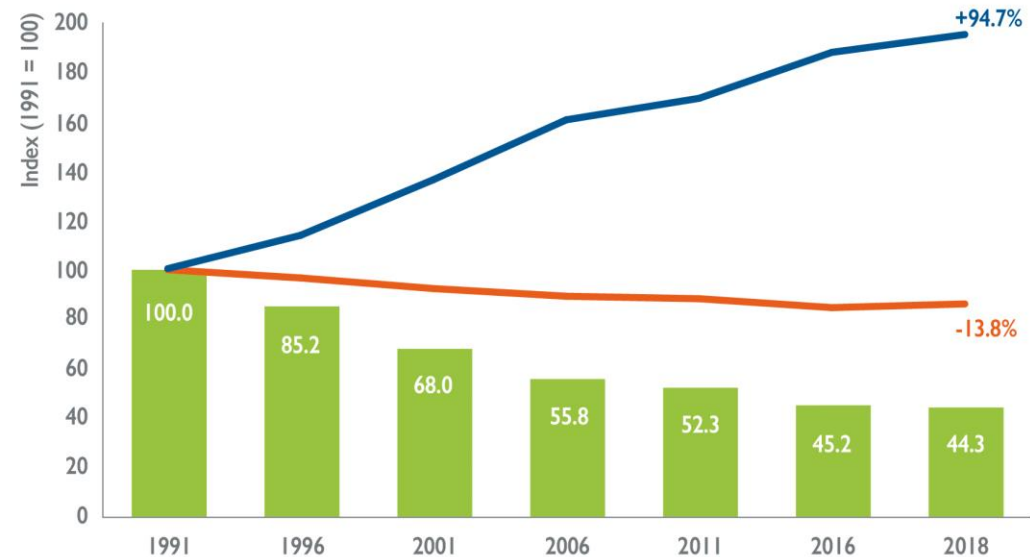
“The chemical  
industry is placed  
at the beginning  
of the product  
supply chain”

(Hans Bender,  
VP External Relations,  
Procter & Gamble)



# Over the past 25 years, we decreased our energy intensity by 60%

Energy intensity in the EU27 chemical industry\*



Average growth rate p.a. 1991-2018

— EU27 chemicals production index (2.5%)

— EU27 energy consumption index (-0.5%)

■ EU27 energy intensity (-3.0%)

Source: Eurostat Energy Database and Cefic analysis 2020

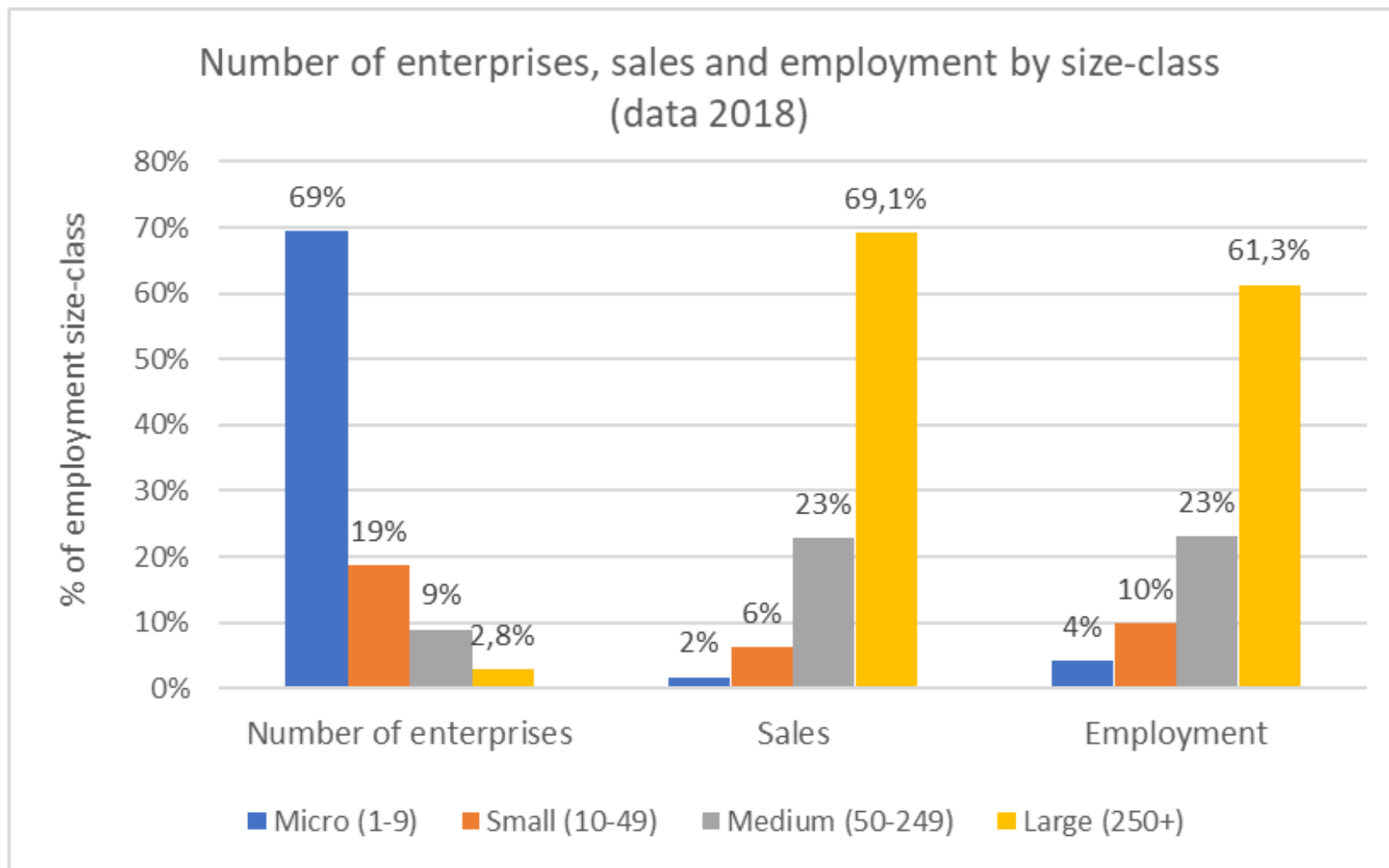
\* Chemicals including pharmaceuticals

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# Role of SMEs in the European chemicals industry

(from a total of almost 1,000 enterprises)



Source: Eurostat SBS Industry and Construction, \*Industry by employment size class, data 2017

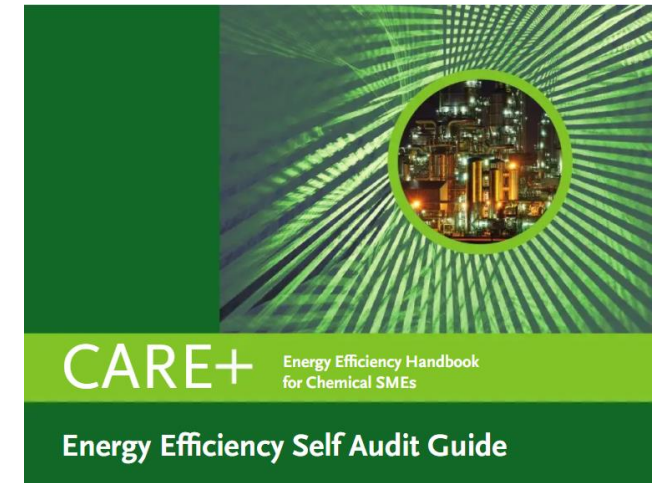
# Chemical Industry and Energy Efficiency

- The chemical Industry is a very diversified sector, in terms of dimensions, energy consumption, energy intensity, energy management "styles"
- It has a potential to develop impressive networking capabilities, to help the flow of available information and know-how, and the diffusion of best practices
- These characteristics have been exploited in two initiatives aimed at SMEs, co-financed by the Commission:
  - The Care+ Project (2008-2011)
  - SPiCE<sup>3</sup> Project (2013-2017)



# The Care+ Project (2009-2011)

- Aim:
  - Develop, test and offer to SMEs proposals for an efficient use of energy
  - Diffuse information on energy efficient technologies and on energy management systems
  - Demonstrate, with formation activities and field verifications, that energy consumption reduction is an achievable objective
  - Improve SMEs performance
- Main tools:
  - Best Practice Manual: guidance booklets on best practices in energy efficiency
  - Self Auditing Tools: to perform assessment of possible energy efficiency improvements
  - Field assistance





# SPiCE<sup>3</sup> project (2013-2017)

SPiCE<sup>3</sup> closes knowledge gaps and links bottom-up with top-down through our national federations and companies at international and local level



## Online platform

- One-stop shop for energy efficiency information



## Workshops

- Knowledge sharing between SMEs, large companies and energy expert organisations



## On-site training

- Site visits to SMEs by energy experts to assess potential measures and give recommendations



## EU awards and events

- Promoting good practices – joining up with Responsible Care





# Lessons learnt from Cefic projects – general

1/2

- Usually there is a 10-20% energy efficiency improvement potential in many SMEs addressing energy audits for the first time
- While the concept of Energy Efficiency is in principle very clear, its definition and measurement in practice is technically complex and often subject to specific case by case considerations, very often unsuitable to easy extrapolation.
- In chemical processes, replacing energy vectors could compromise the final chemical reaction and/or the characteristics of the final product
- Time and qualified human resources have to be committed to address energy efficiency: a project is a result of careful study of a specific situation, with a system approach.
- In an energy efficiency improvement project definition, energy efficiency must be coupled with economic efficiency: this may imply limits to the extent of worthwhile actions for energy efficiency improvements.
- Once a project has been defined, its feasibility depend on competition for the use of limited financial resources and the necessary priority to “core business” projects.



# Lessons learnt from Cefic projects – SME specific

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- Lack of knowledge
  - Investments in the chemical industry require rather precise technical competences
  - Difficult to find such knowledges in external consultants
  - Particularly with micro-enterprises, company activities often rotate around the founder's life: no long-term vision beyond retirement
- Administrative burdens
  - Dealing with energy efficiency programmes requires diverting human resources
- Limited staff resources
  - Note: not all companies have an 'energy manager' in their organigramme
  - Especially in micro-enterprises, example of CEO 'fac totum'
- Financial limitations
  - Balance sheets not robust enough for long-term investments
  - ROI in energy efficiency needs to be comparable with ROI in "core business": often difficult to reach in the absence of support measures



# Thank you.

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**About Cefic**

Cefic, the European Chemical Industry Council, founded in 1972, is the voice of large, medium and small chemical companies across Europe, which provide 1.1 million jobs and account for 15% of world chemicals production. Cefic members form one of the most active networks of the business community, complemented by partnerships with industry associations representing various sectors in the value chain. A full list of our members is available on the Cefic website. Cefic is an active member of the International Council of Chemical Associations (ICCA), which represents chemical manufacturers and producers all over the world and seeks to strengthen existing cooperation with global organisations such as UNEP and the OECD to improve chemicals management worldwide

