Hydrogen as a decarbonisation solution

Nicola Rega

Energy Director

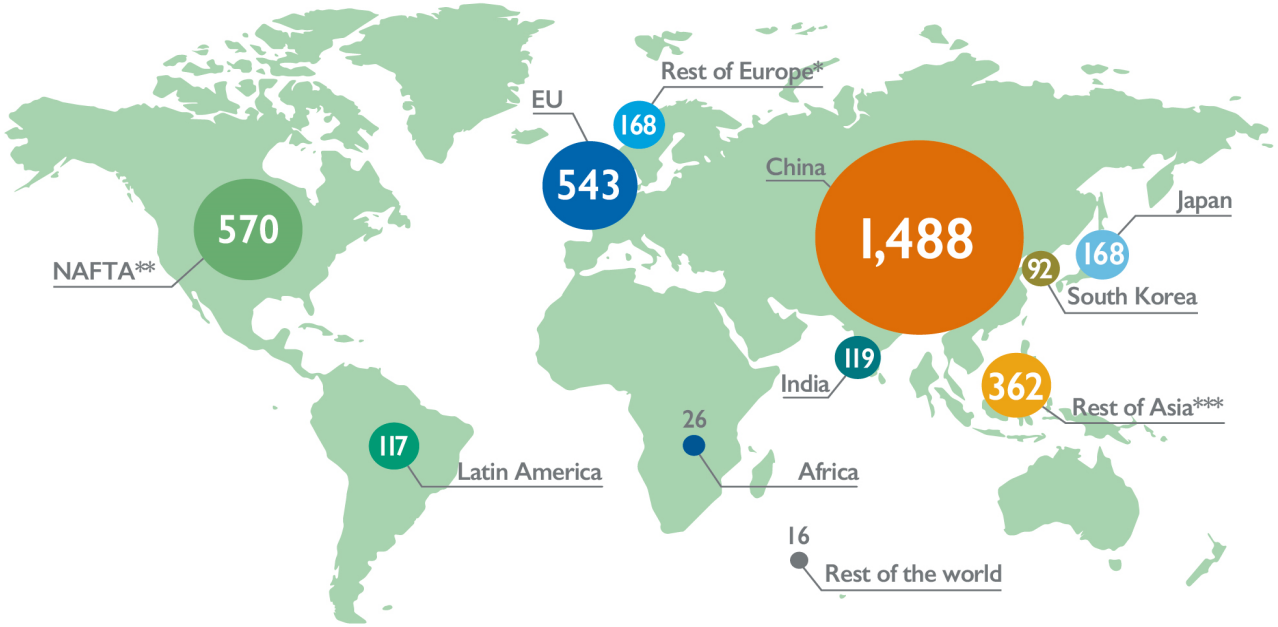
February 22nd 2021
FORATOM

cefic

Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

Europe is the second largest chemicals producer in the world

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



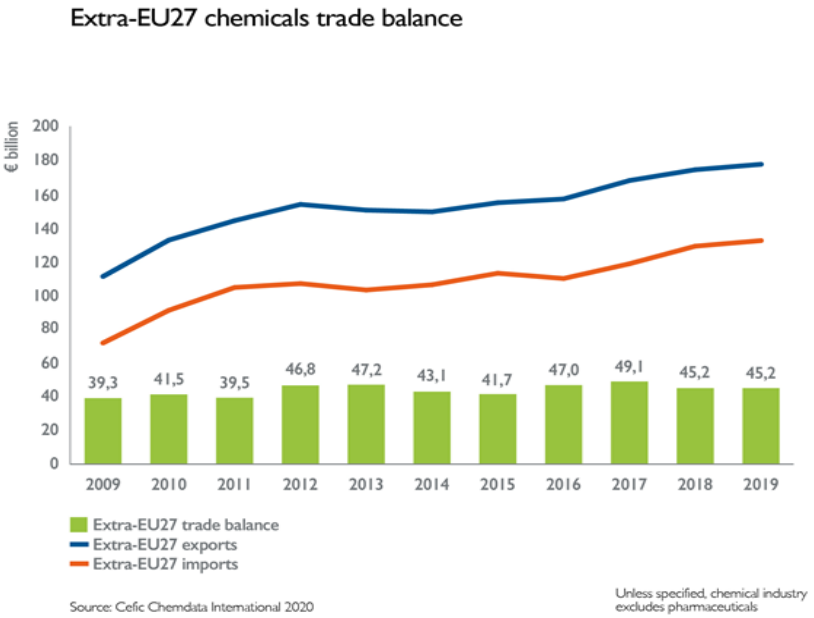
Source: Cefic Chemdata International 2020
* Rest of Europe covers UK, Switzerland, Norway, Turkey, Russia and Ukraine
** North American Free Trade Agreement
*** Asia excluding China, India, Japan and South Korea

Unless specified, chemical industry excludes pharmaceuticals

At the Heart of European Industry
Providing the essentials

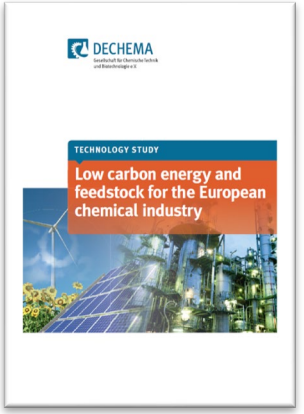
- Network **of more** than **5,000** chemical industry **experts**
- **Non-SMEs** companies contribute to 70% of EU27 sales and 60% of EU27 employment
- **€543** bn in EU27 **sales** (2019)
- EU27 chemical **trade surplus** of **€45,2** (2019)
- One of the largest investors in EU27 manufacturing (**€21,5** bn, 2019)

Extra-EU27 Chemicals Trade Flows (€ billion)



Low carbon energy and feedstock for the European chemical industry

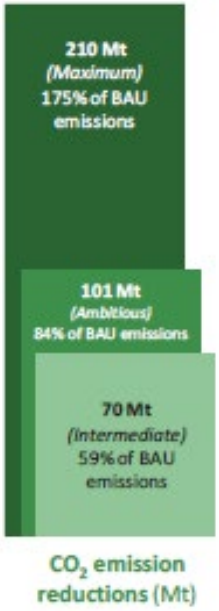
Technology study looking at potentials of CO_2 emission reductions by 2050



Link to the study

Scenarios:

- **Intermediate, (Interm)** describing a moderate level of ambition and slow but continuous deployment of low-carbon technologies,
- **Ambitious (Amb),** depicting a high level of ambition and strong support of all stakeholders to overcome any constraints,
- **Maximum (Max),** describing the theoretical potential, i.e. upper limit of possible CO_2 reductions.



Role of hydrogen in the chemical industry on the path to 2050

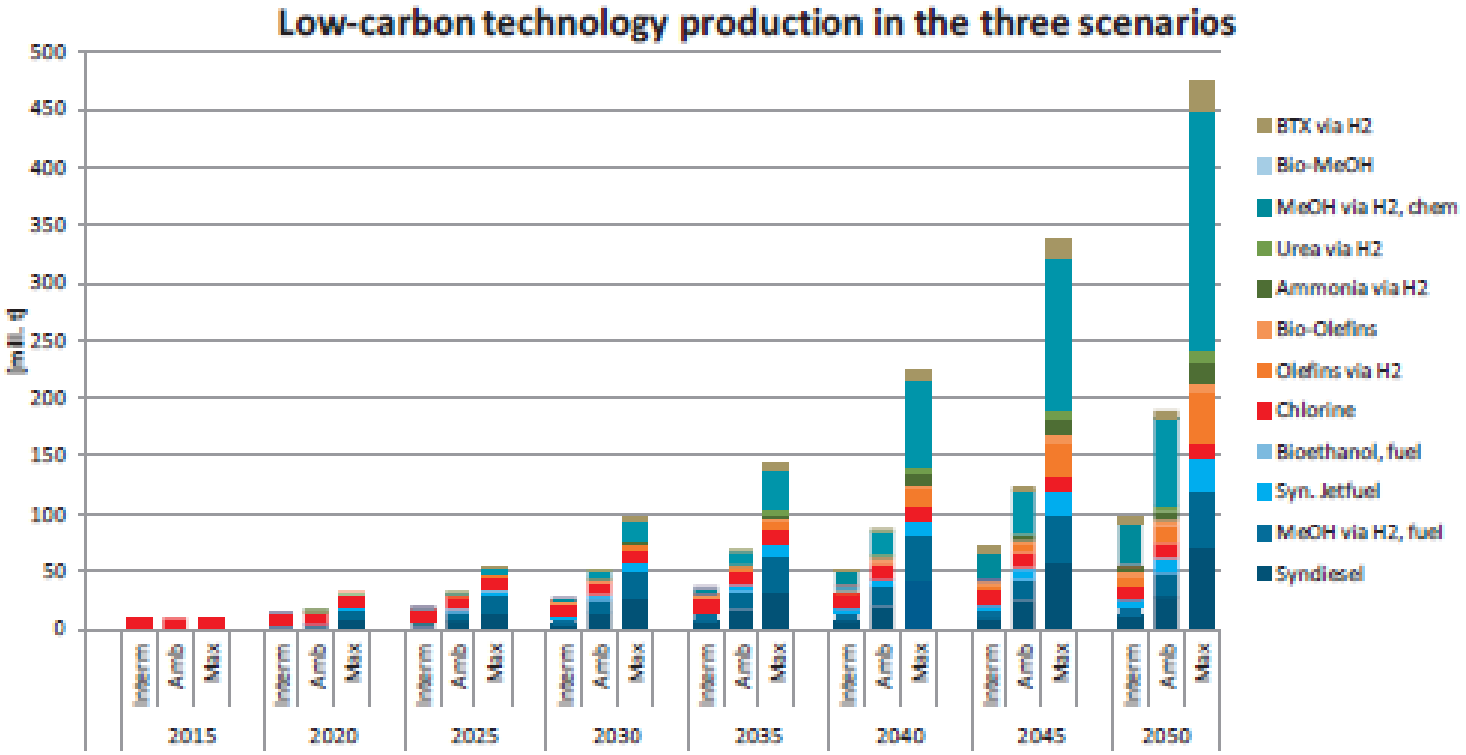
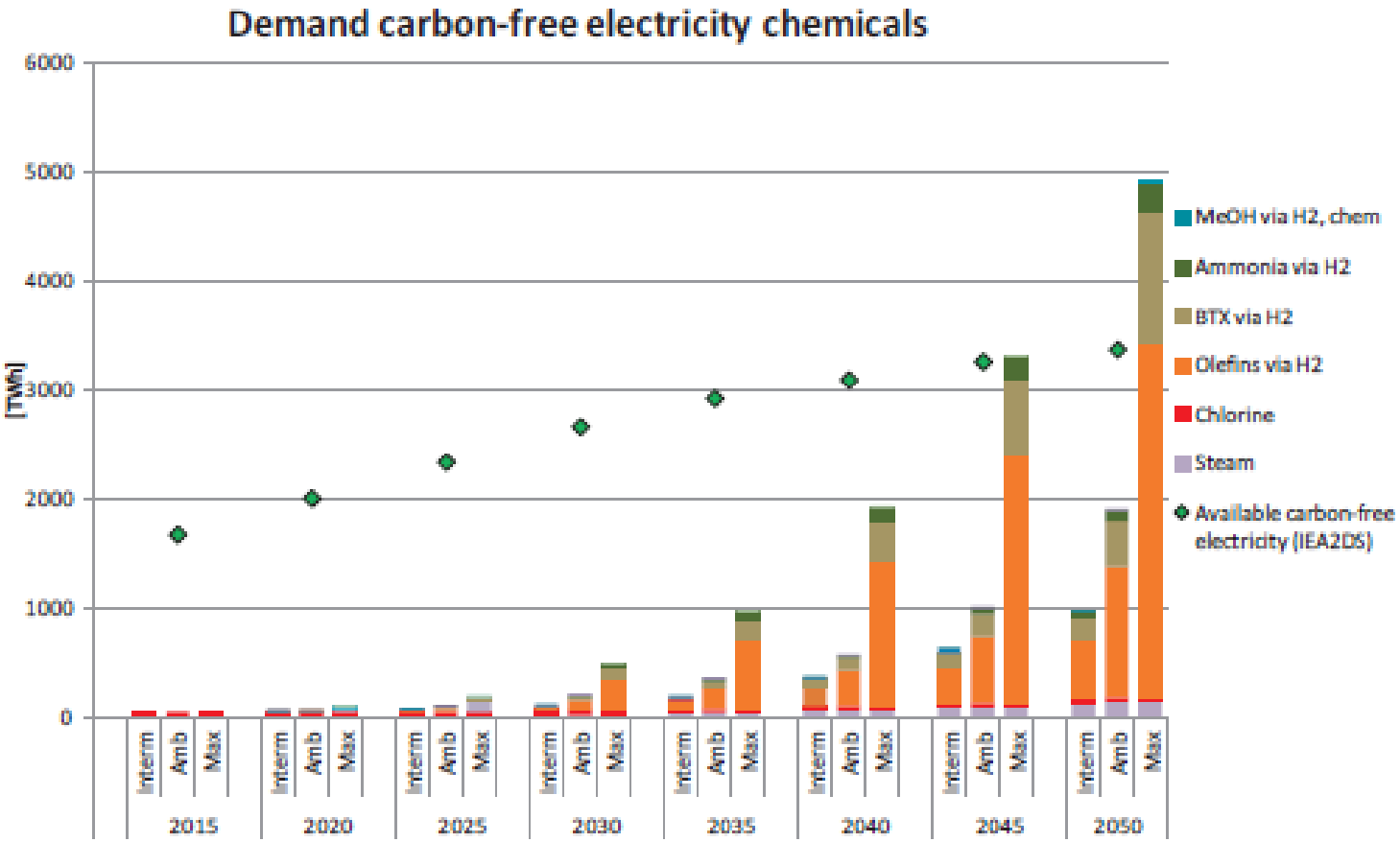


Figure 24: Production volumes based on low carbon technologies, all scenarios

Role of electricity in the chemical industry on the path to 2050



Few concluding remarks

- The quest for hydrogen is first and foremost a quest for electricity
- Electricity needs to be carbon-free, cost-competitive and… ABUNDANT!!!
- Enough carbon-free electricity for both direct and indirect electrification???
- We need to prepare for different scenarios for hydrogen production, such as (non-exhaustive list):
  - hydrogen delivered via pipelines
  - On-site hydrogen production – for energy use
  - On-site hydrogen production – for low-carbon feedstock/fuels production

Thank you!

Get in touch if you have questions:

Nicola Rega

nre@cefic.be

www.cefic.org

Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY