McKinsey & Company

Industrial Challenges and Opportunities

Chemtech Synergy 2024

Antwerp, November 6th, 2024

Europe's chemical industry has done well in the past despite disadvantages

Chemicals total return to shareholders (TRS)
USD (index Jan 2000 = 100)

Source: S&P Global Market Intelligence; McKinsey Value Intelligence Platform

However, the industry is now at a point of "poly-crisis" and inflection

Demand

-10-25%

Drop in demand in many chains 2019-24

Energy prices

2x

Structural increase in natural gas and electricity prices

Overcapacity

<70%

EU capacity utilisation in many chains to 2030

Industrial production

5-20%

Fall industrial activity in key sectors

CO2 prices

3x

Energy prices rising further with CO2 accounted for

Trade

90%

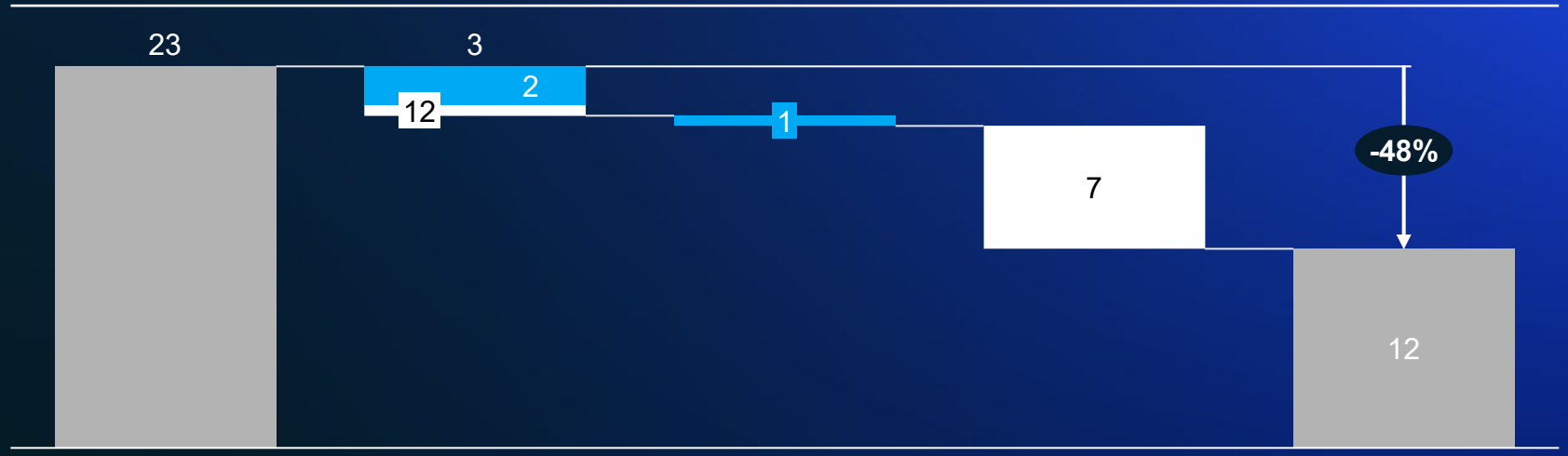
China self-sufficiency in major chemicals

Source: IMDS, McKinsey analysis

As a result, half of the value pool in Europe has eroded

Volume-based | Value-based | x Deep dive to follow

Western European Petrochemicals[1] value pool, $bn



Value erosion factors (2016 – 2023)

Global overcapacity has **intensified competition**, leading to both **volume and value erosion** in Europe

This was coupled with **utilities and fixed costs growth** (e.g. ~60 USD/t for ethylene, ~220 USD/t for MDI, 600 USD/t for PC), which made European producers **cost-disadvantaged** compared to global peers

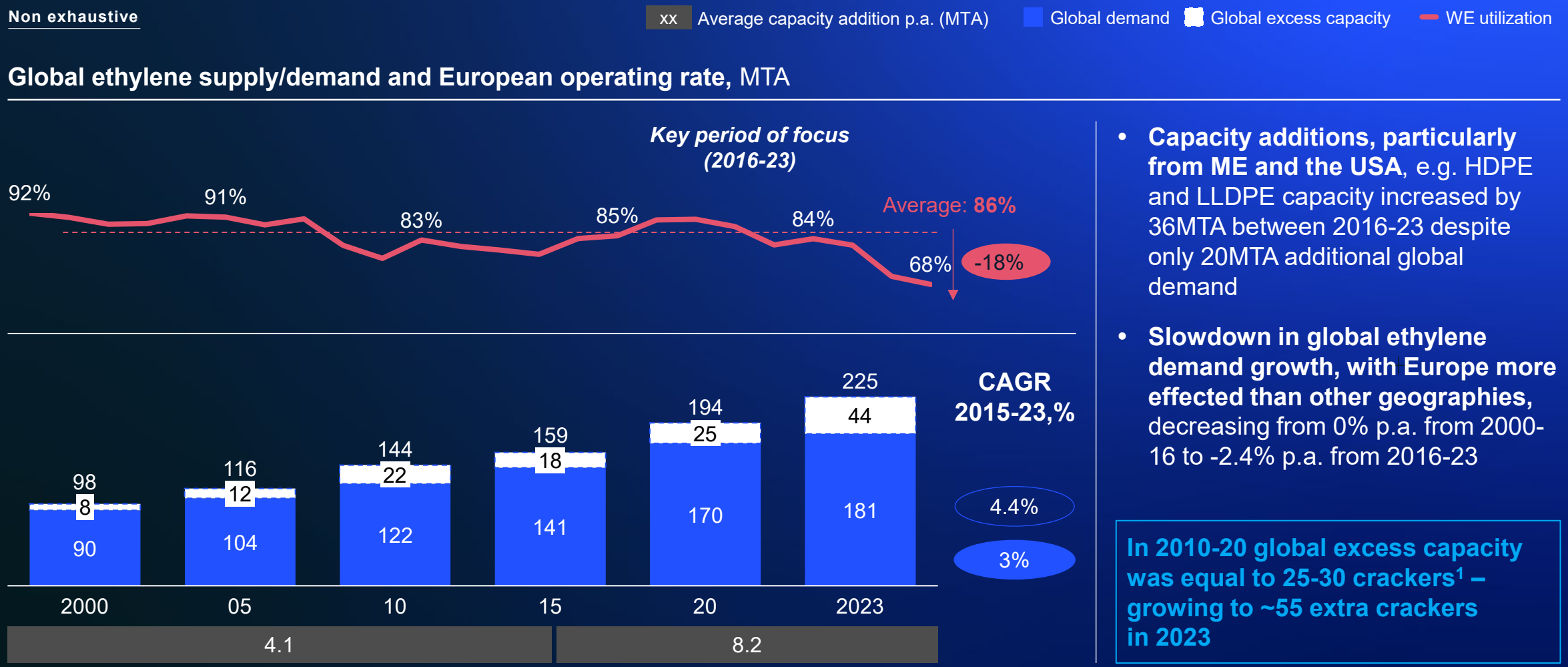
For a subset of chemicals (Ethylene, PE, PP), global overcapacity is a more significant factor (60% value erosion) and cost pressure is lower

1. 36 products across C2,C3,C4 and BTX value chains
2. Includes price spread decline - delta between selling price and the cost of feedstock (including by-product credits)

Source: McKinsey Chemical Insights Value Pool model

Global overcapacity: Rapid capacity additions and sluggish demand growth reduced WE utilization to historic low (since 2000) of 68%

Non exhaustive



- **Capacity additions, particularly from ME and the USA**, e.g. HDPE and LLDPE capacity increased by 36MTA between 2016-23 despite only 20MTA additional global demand
- **Slowdown in global ethylene demand growth, with Europe more effected than other geographies,** decreasing from 0% p.a. from 2000-16 to -2.4% p.a. from 2016-23

In 2010-20 global excess capacity was equal to 25-30 crackers[1] – growing to ~55 extra crackers in 2023

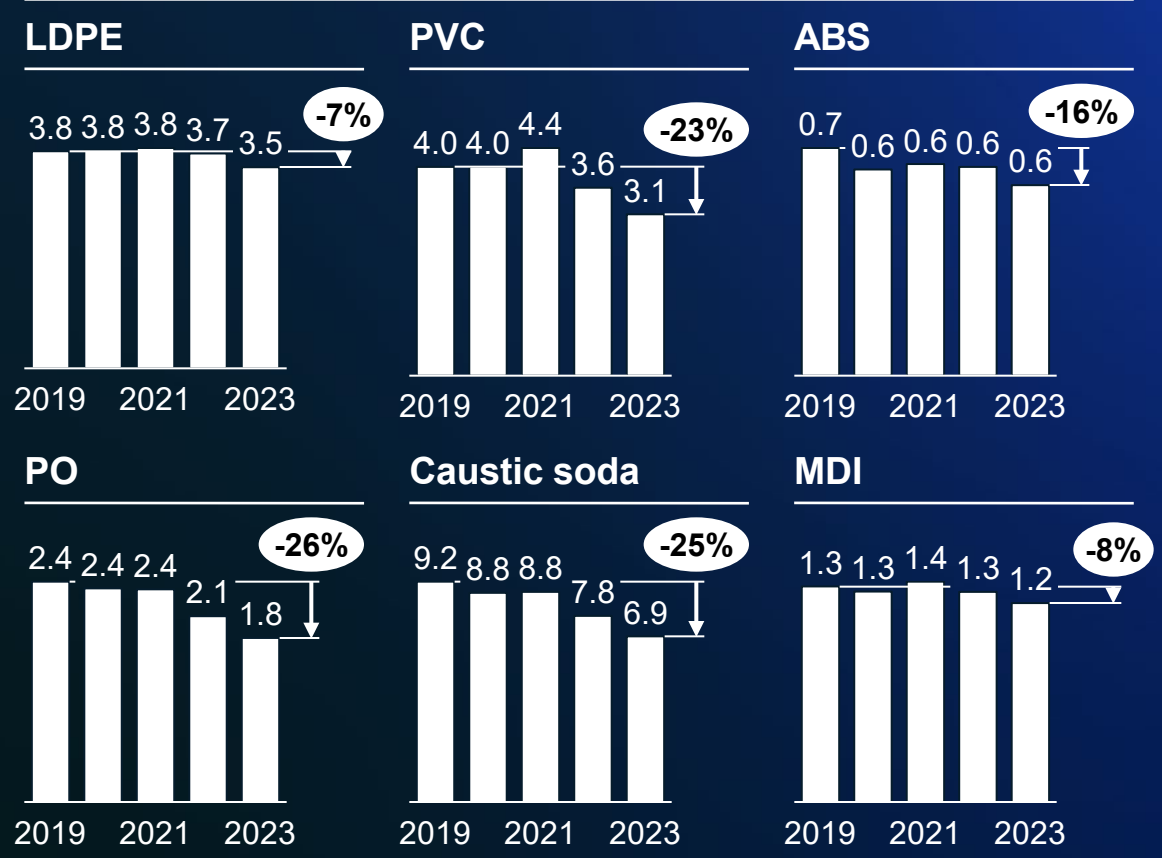
1. Assuming ~800kt average cracker size

Source: OPIS CMA

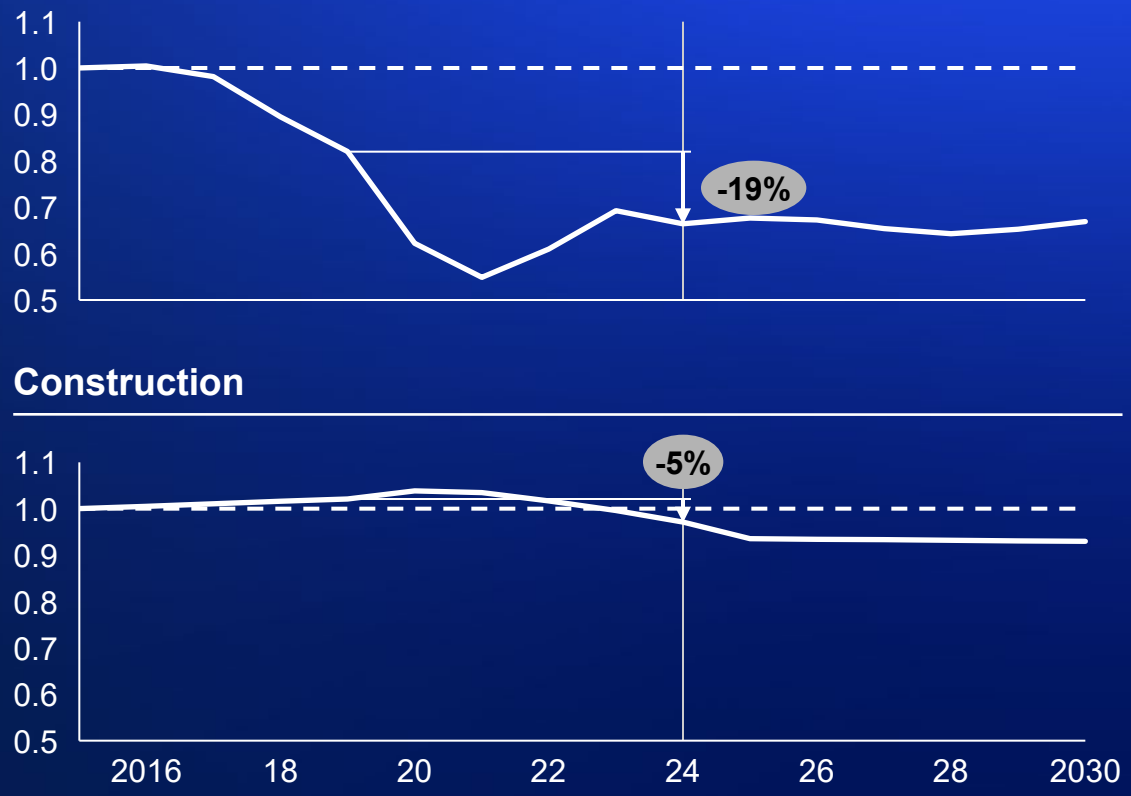
Local demand: Decline in European chemicals demand and in underlying industry

xx Delta 2019-'24

W Europe domestic demand, Mt per year



German industrial production by segment 2015=1.0

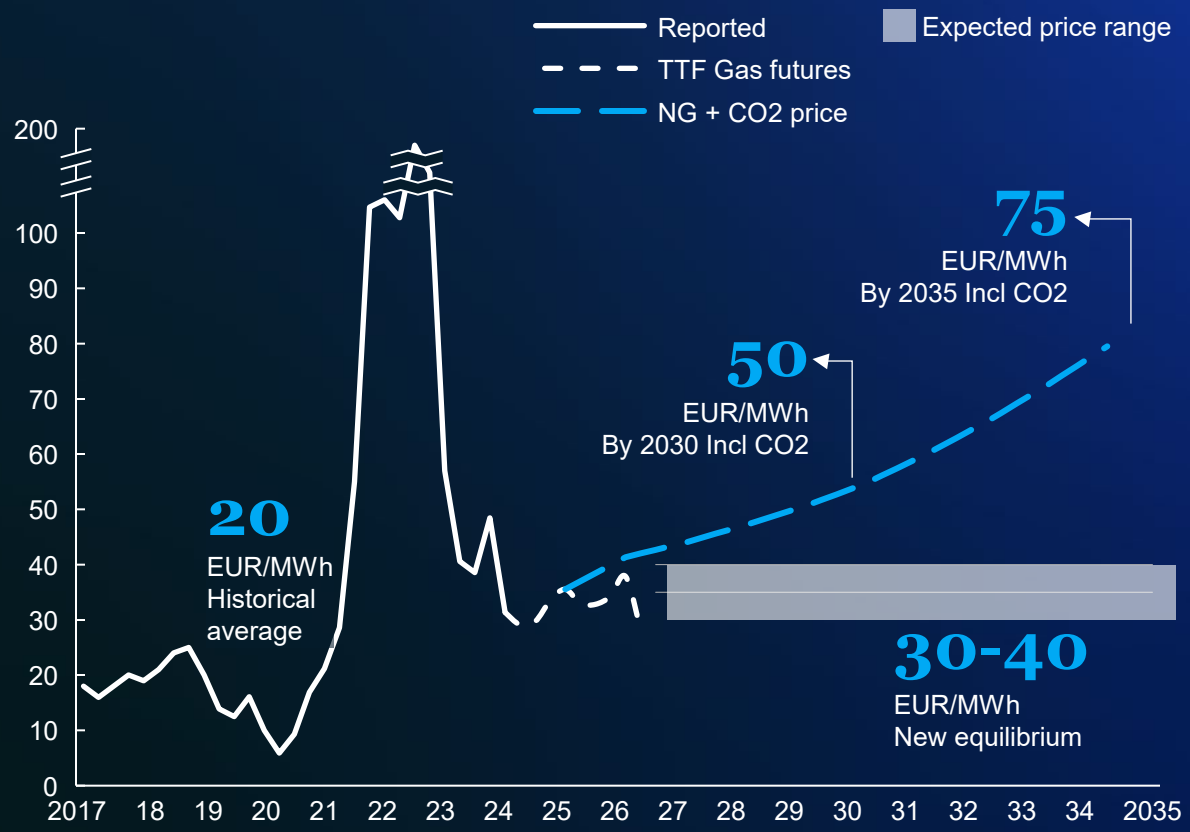


1. Questionnaires sent to a panel of around 150 construction companies
Note: Forecast based on McKinsey's fading momentum scenario

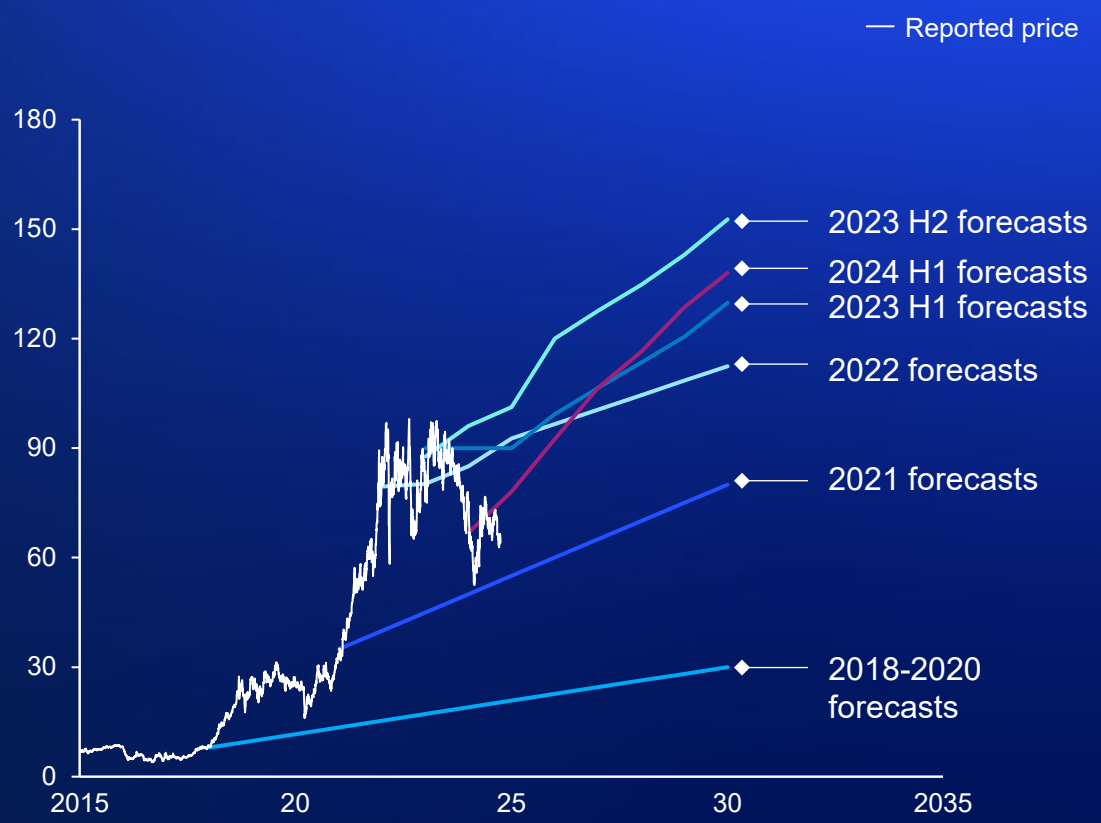
Source: IHS Markit, OPIS CMA

Utility costs: EU energy prices reaching new 2x highs, going to 3x with CO_2

Cost of natural gas rising sharply
Natural gas prices and CO_2 cost of natural gas, €/MWh



EU carbon price and forecasts continue to rise
EUR per t CO_2

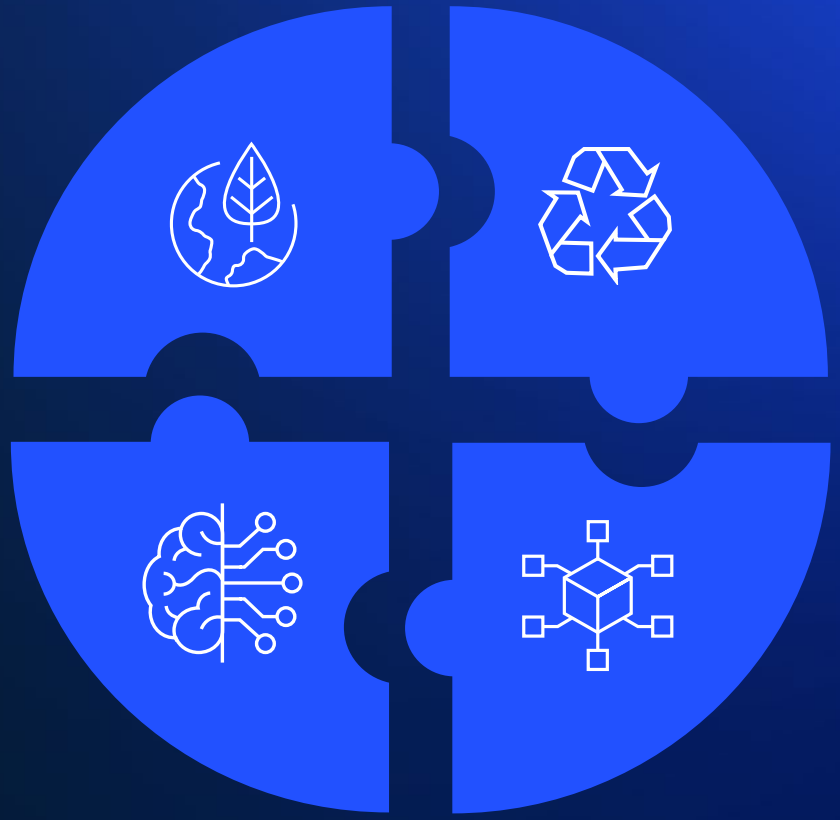


Source: Bloomberg, Rystad, IHS Markit, McKinsey MGI & Oxford economics, McKinsey Energy Insights, EU Commission, ICE, McKinsey analysis

Against this backdrop, European players can utilize innovation to turn back to value creation with focused activities

Decarbonization

Circularity



Digitalization & AI

Novel applications

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Thank you