



The need for more green energy in the chemical industry

Energipolitisk Konference 2022

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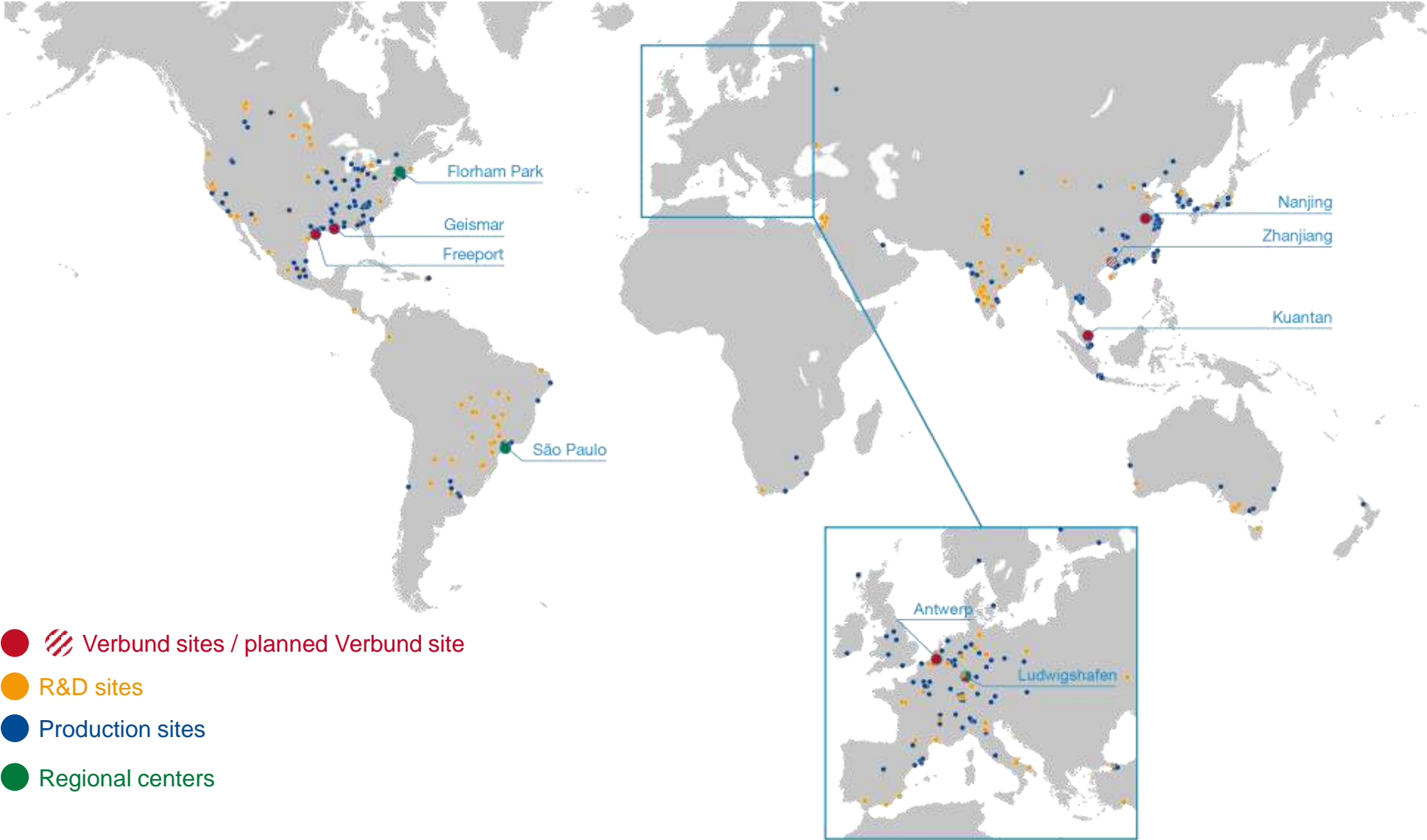
Copenhagen , 05 October 2022

BASF – We create chemistry

- Our chemistry is used in almost all industries.
- We combine economic success, social responsibility and environmental protection.
- Sales 2021: €78.6 billion
- EBIT before special items 2021: €7.8 billion
- Employees (as of December 31, 2021): 111,047
- 6 Verbund sites and 232 other production sites
- Around 90,000 customers from various sectors in almost every country in the world



BASF worldwide: Our sites



Our contribution to achieving the Paris Climate Agreement – BASF's Climate Targets

2030

25%
CO₂ Reduction
(compared to 2018)¹

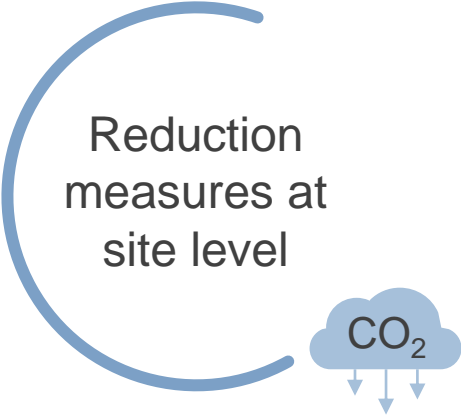
2020 BASF CO₂ Emissions **20 Miot**

2050

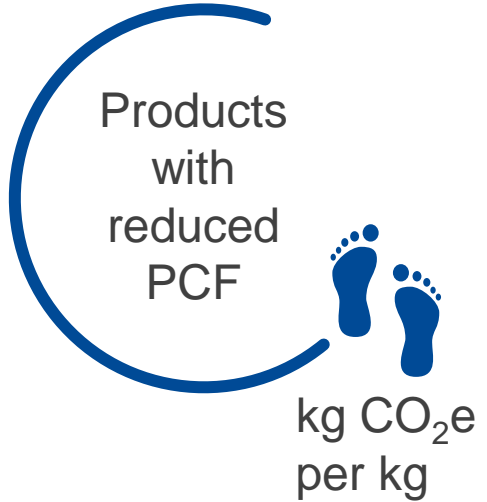
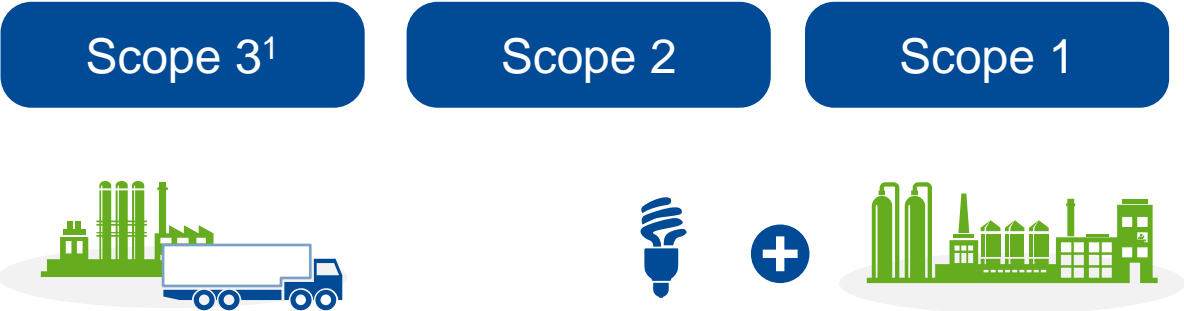
net zero
CO₂ Emissions¹

Our two perspectives on emission reductions

BASF Group targets

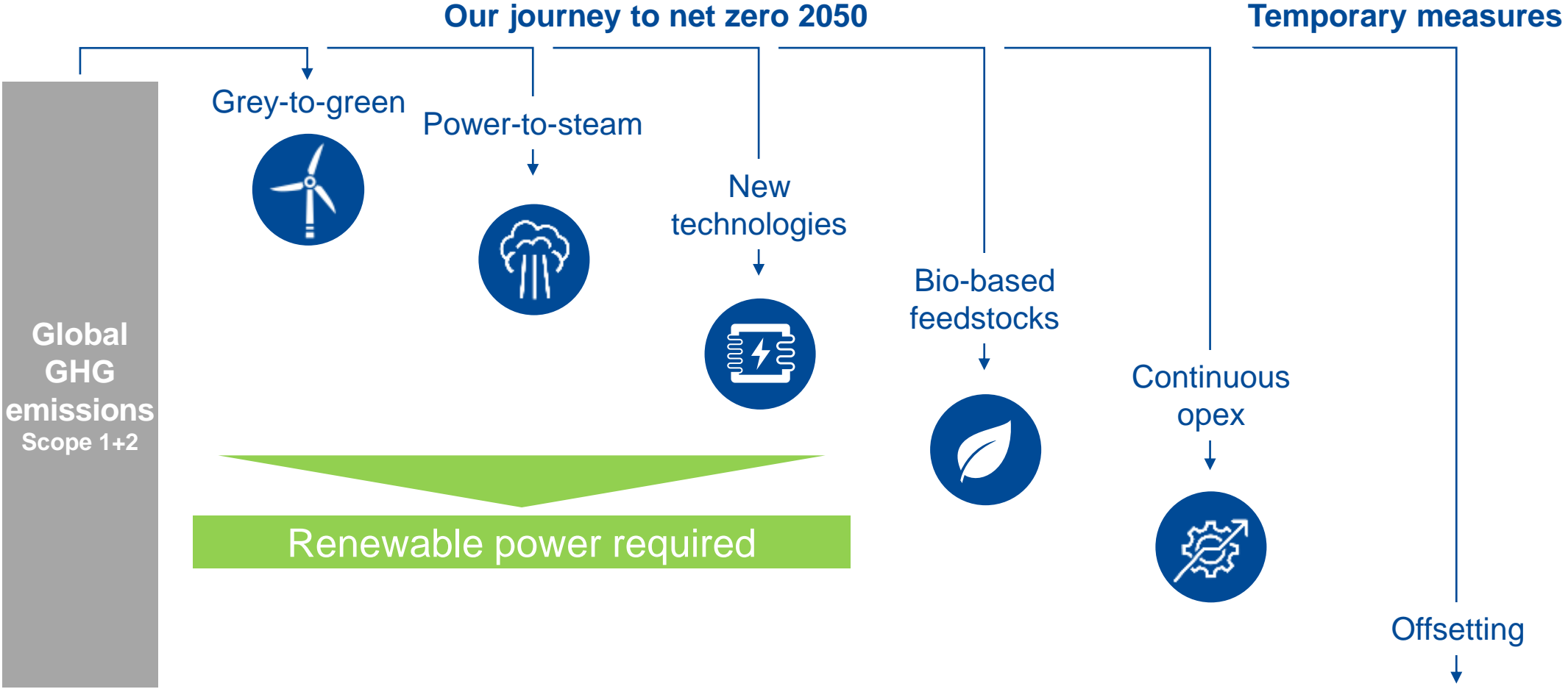


Product carbon footprint (PCF)



¹ Scope 3 emissions from raw materials production by suppliers

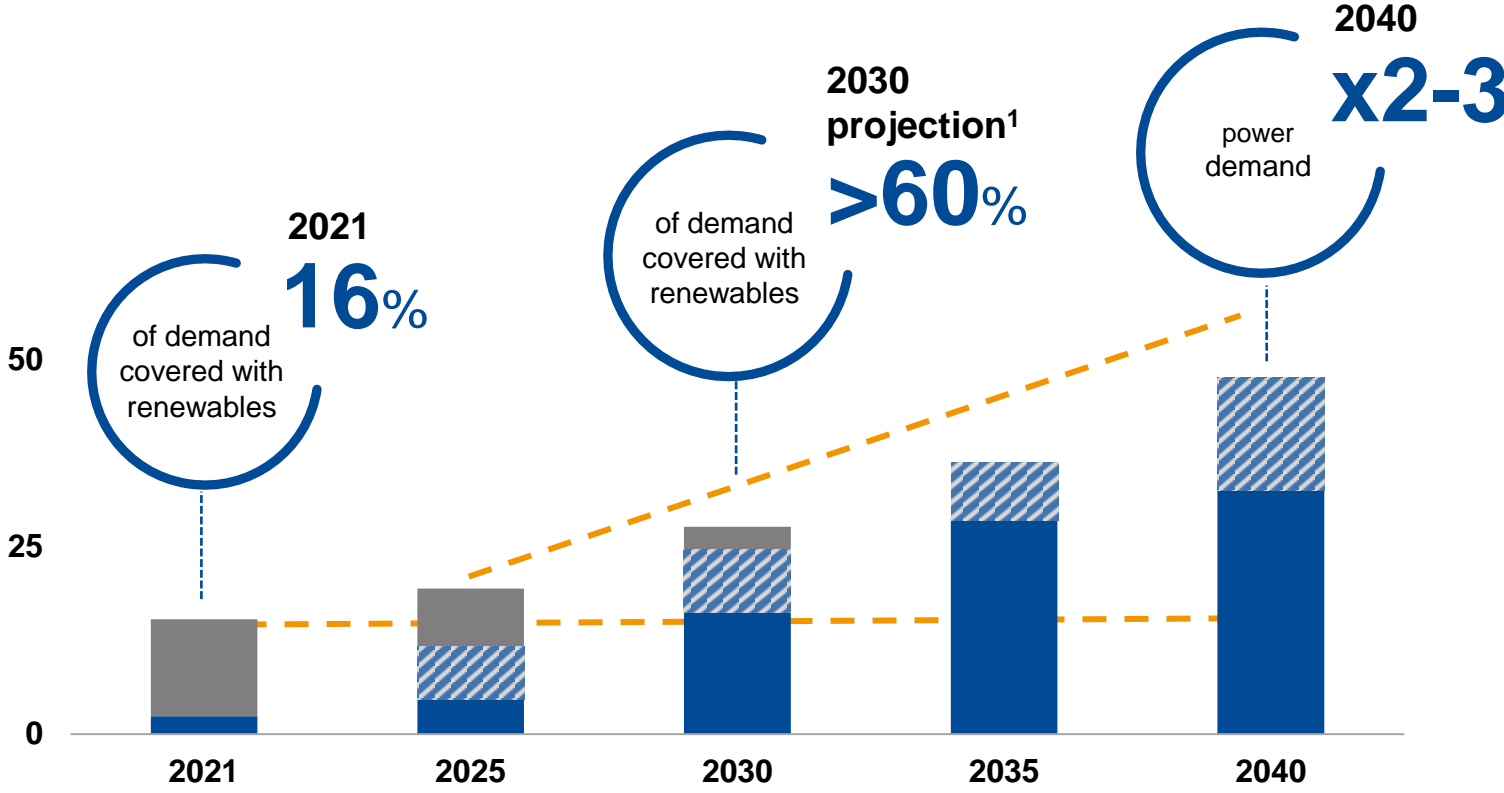
BASF's levers to reduce CO₂ emissions



BASF power consumption expected to increase strongly – demand will be covered with equity participations and PPAs

BASF global power demand and renewable supply projection

Terawatt hours



Make

We invest in our own renewable sources.

Buy

We purchase green energy from partners.

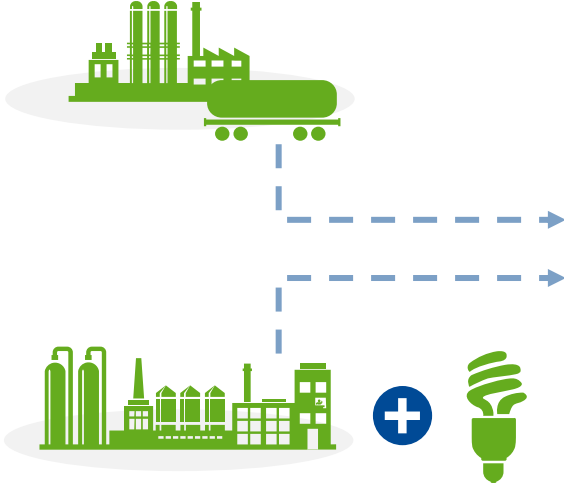
■ Grey energy ■ Green energy ■ Range¹

¹ Percentage depends on market and regulatory development

We have built an industry-leading system enabling us to provide product carbon footprints calculated with a certified digital solution

Scope 3

Emissions caused by suppliers and generation of raw materials



Scope 1 + 2

Emissions caused by own operations¹



- TÜV-certified²
- Meets ISO standards³
- Calculates product carbon footprints cradle-to-gate

CO₂



Product carbon footprints of sales products



Customer benefits

- Transparency on CO₂ emissions
- Identification of main reduction levers
- Certified software
- Transparent documentation

¹ Energy generation and chemical processes
² ISO 14067:2018
³ ISO 14040:2006, 14044:2006, 14067:2018, GHG Protocol Product Standard

Chemical industry agrees on global standard for calculating product carbon footprint

As part of the joint initiative “Together for Sustainability” (TfS), 37 companies from the chemical industry, including BASF, have agreed on a global guideline for calculating product carbon footprints (PCFs)

With the aim of fostering standardization, BASF has been openly sharing its PCF calculation methodology with suppliers, customers and peers.

This methodology is in line with the relevant ISO standards (ISO 14040, ISO 14044, ISO 14067) and the Greenhouse Gas Protocol Product Standard, while being more prescriptive and specific for the chemical industry.

With the clear intent to enable the industry to perform carbon accounting at scale and support PCF data transparency, BASF has been making its digital solution for product carbon footprint calculation available into the market by licensing it to software houses.

Gold standard for calculating PCFs in the chemical industry



Product Carbon Footprint Guideline by TfS

Ørsted and BASF sign a 25-year offshore wind power purchase agreement in Germany

BASF and Ørsted have concluded a 25-year fixed-price corporate power purchase agreement (CPPA), under which BASF will offtake the output of 186 megawatts from Ørsted's planned Borkum Riffgrund 3 Offshore Wind Farm in the German North Sea.

*Mads Nipper, CEO of Ørsted says: "In the common fight against climate change, it's **partners** like BASF that **will make the difference**. The chemical sector has a challenging path towards decarbonisation, but it will also make one of the biggest contributions.*

*"Ørsted and BASF share a vision that innovative, zero-emission technologies like large-scale offshore wind can play a significant role in the emission reductions in the chemical industry," say both **CEOs, Brudermüller and Nipper***



Exemplary BASF renewable energy projects across the globe



**Hollandse Kust Zuid—
world’s largest wind park**



**Additional offshore wind
farm German North Sea**



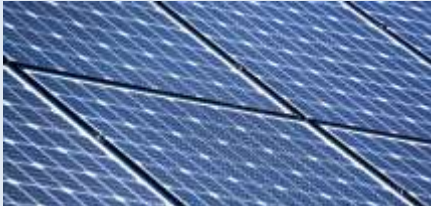
**On-site solar park
Schwarzheide, Germany**



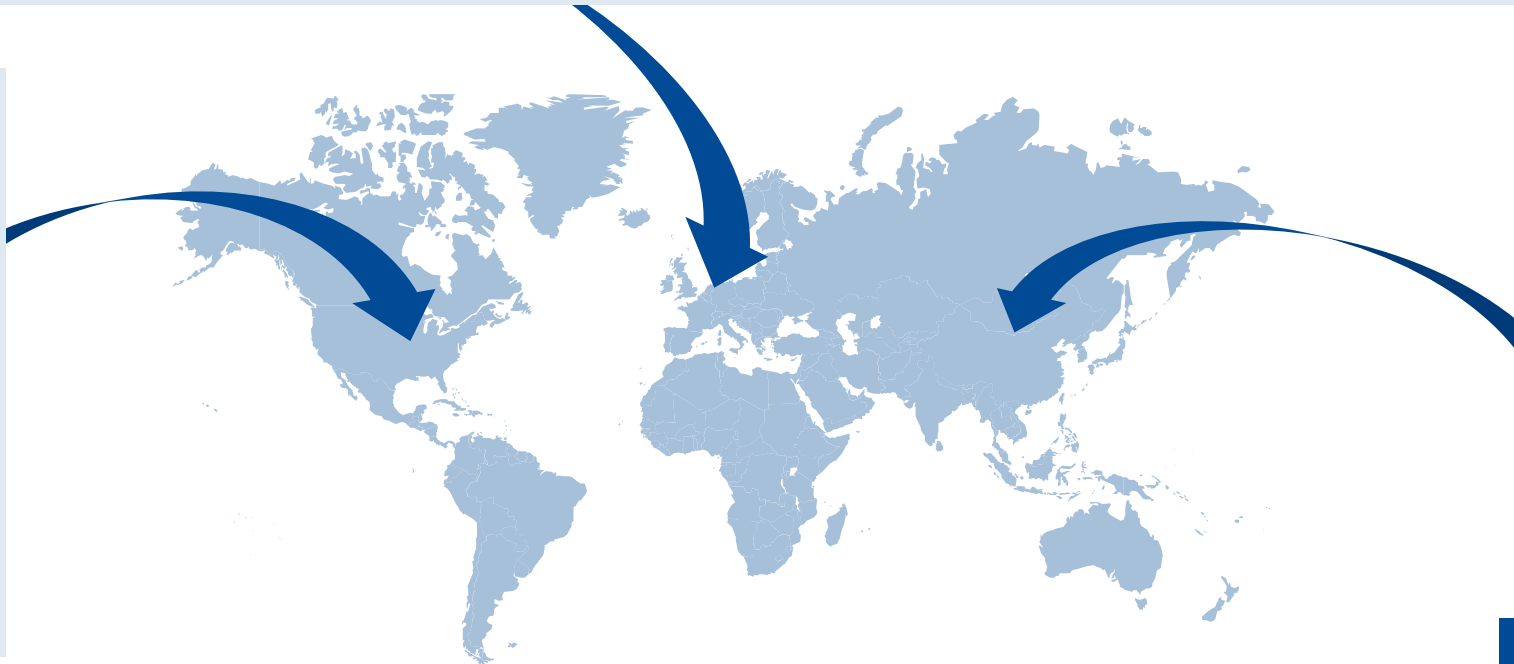
**25 years onshore wind
power from Spain**



**25 years offshore wind
power from Germany**



**Wind and solar power
for 20 sites across US**



**Renewable power for
Zhanjiang site, China**

Picture sources: BASF, American Public Power Association

Our view on the current situation of the EU power market and the planned interventions

High power prices



- **Result of scarcity** (would occur in any free market)
- **Increased supply** as most important option to sustainably reduce power prices

Emergency government support



- Short term **emergency government support required** to stabilize society and economy (without touching market design)
- Preferred alternative to revenue cap would be **reduction of fees, surcharges & levies** (quick implementation, immediate results)

Structural reforms



- **Current “marginal pricing” market design is best known coordination mechanism for supply & demand**
- Structural reforms might **jeopardize capital availability** and could have detrimental effects

Long-term requirements for net-zero transformation: Access to sufficient amounts of renewable energy at competitive prices

Securing access to sufficient amounts of renewable energy at competitive prices



Invest in the right infrastructure



Ensure right regulatory framework

- Expansion of renewable power asset base
- Build out of interconnector capacities and H2 pipeline network
- Reduction of grid bottlenecks
- Ensure supply chain availability
- No profit skimming by government (e.g. 2-sided CfDs)
- Bidding zone setup must enable power offtake at industrial sites
- Reliable and accelerated approval processes for assets
- Access to green power attribute (e.g. green power criteria)
- Reduced fees, levies & taxes (ca. 40% of end consumer price)
- Regulation must support investments (e.g. no revenue cap)



Thank you for your attention!

Questions?



We create chemistry

Renewable power is used by BASF for innovative new technologies

Electrically heated steam cracker



Natural gas is substituted by renewable power for heating of the furnace.

Methane pyrolysis



Methane is cleaved at high temperatures by electrical power into hydrogen and carbon.

Green Steam



Electrical boilers & high temperature heat pumps to substitute for fossil-based steam.

Water Electrolysis



Production of green hydrogen by electrolysis of water.

