



We create chemistry

We create chemistry for a sustainable future

BASF ESG Investment Story
June 2023

Cautionary note regarding forward-looking statements

This presentation contains forward-looking statements. These statements are based on current estimates and projections of the Board of Executive Directors and currently available information. Forward-looking statements are not guarantees of the future developments and results outlined therein. These are dependent on a number of factors; they involve various risks and uncertainties; and they are based on assumptions that may not prove to be accurate. Such risk factors include those discussed in Opportunities and Risks on pages 157 to 167 of the BASF Report 2022. BASF does not assume any obligation to update the forward-looking statements contained in this presentation above and beyond the legal requirements.

Resource efficiency – BASF's Verbund is ideal for CO₂ emission reduction



- Combined heat and power plants and integrated energy Verbund avoided 6.2 million metric tons of CO₂e emissions in 2022
- Synergies in logistics and infrastructure, minimization of waste
- BASF uses fossil raw materials responsibly: 75% of carbon converted to products, 25% consumed for process energy and converted to CO₂ equivalents¹
- European emissions trading benchmarks show that BASF's chemical plants operate at above-average energy efficiency

Our commitments to reaching the Paris Climate Agreement

2030

25%

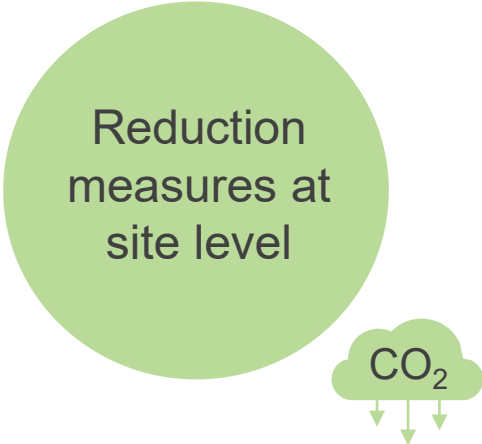
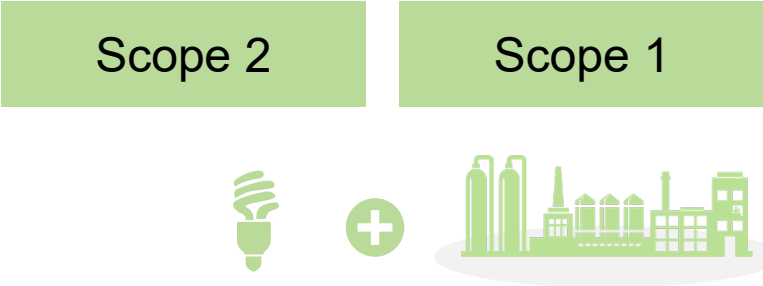
CO₂ emissions reduction
(compared with 2018)¹

2050

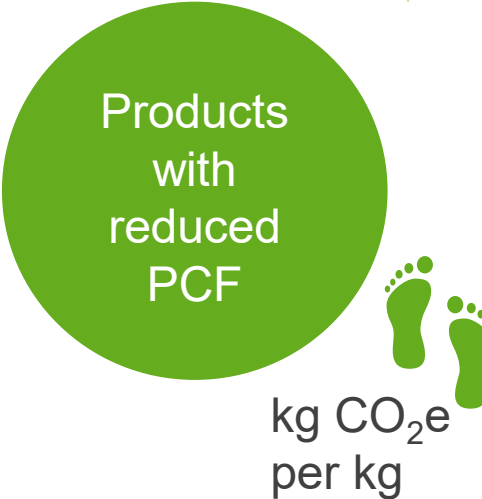
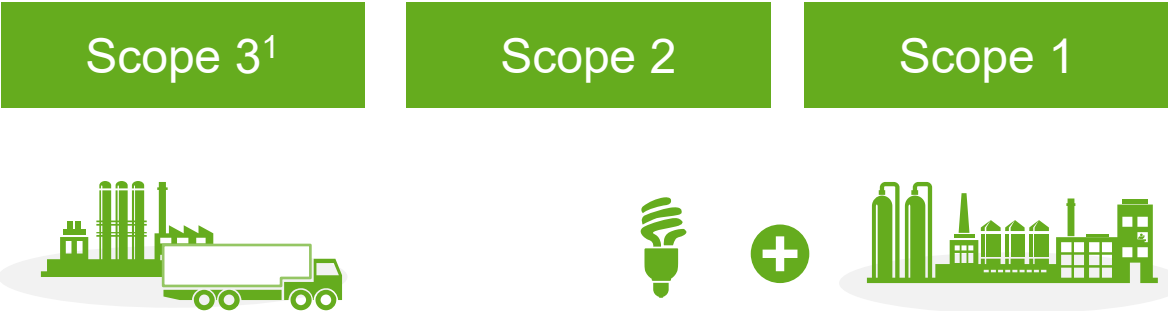
net zero
CO₂ emissions¹

Our two perspectives on emission reductions

BASF Group targets



Product carbon footprint (PCF)

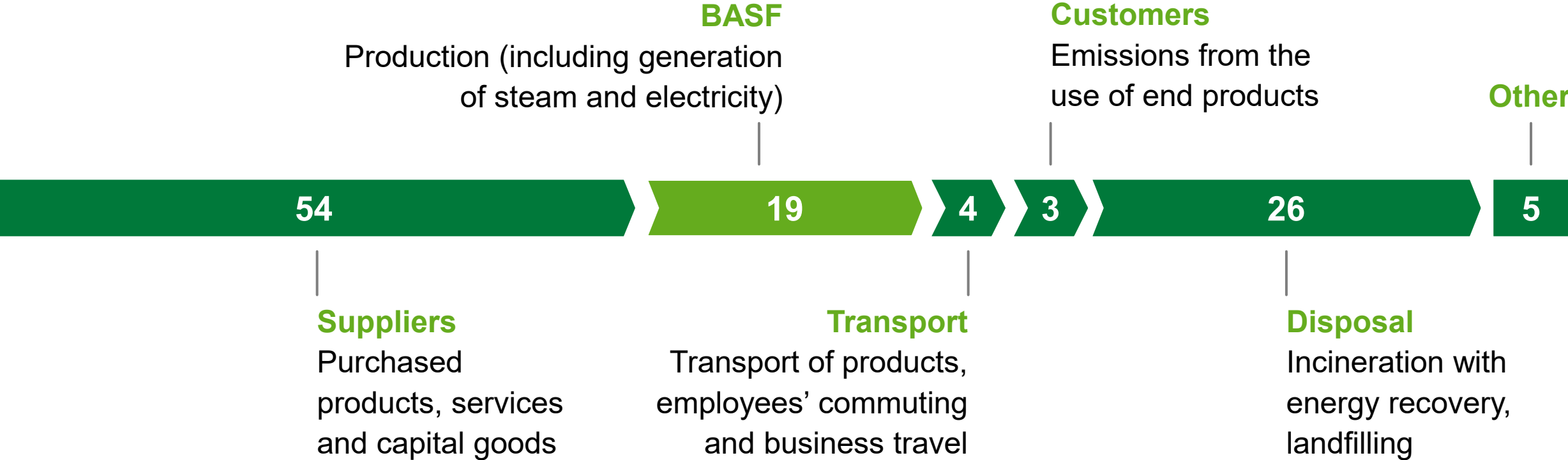


¹ Scope 3 emissions from raw materials production by suppliers

We assume responsibility along the entire value chain

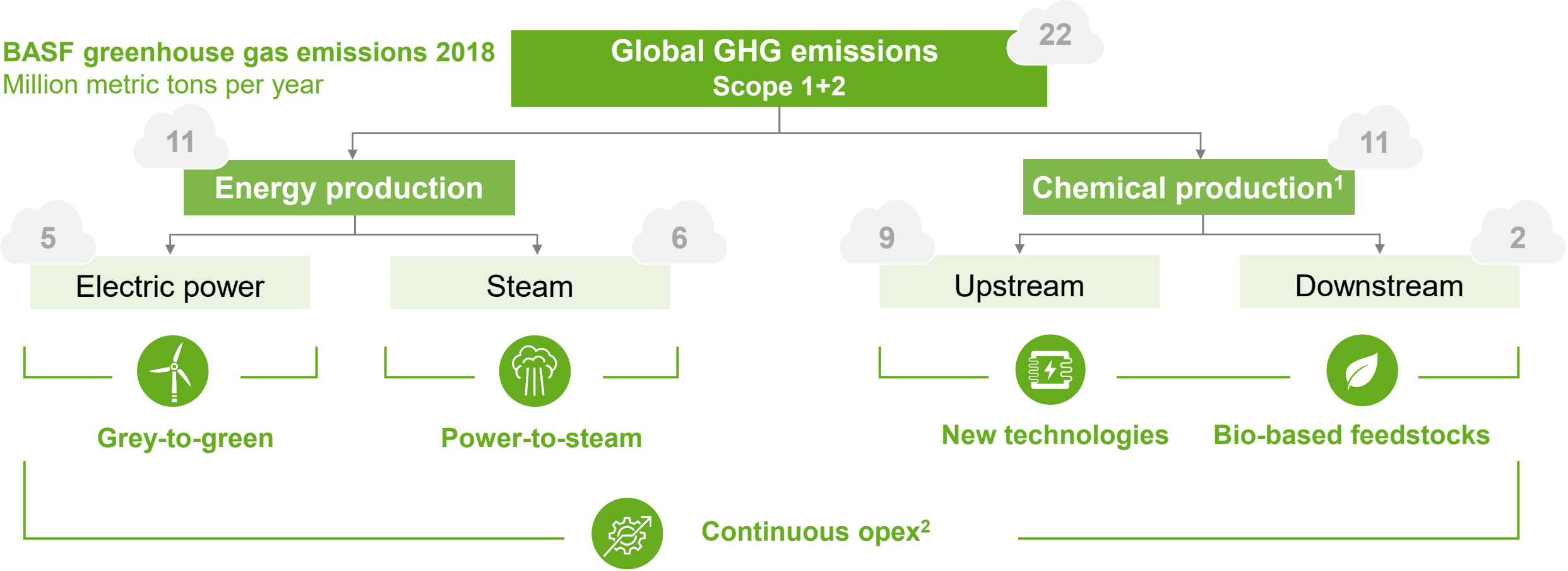
Greenhouse gas emissions along the BASF value chain in 2022

(in million metric tons of CO₂ equivalents)



No downstream decarbonization without upstream decarbonization

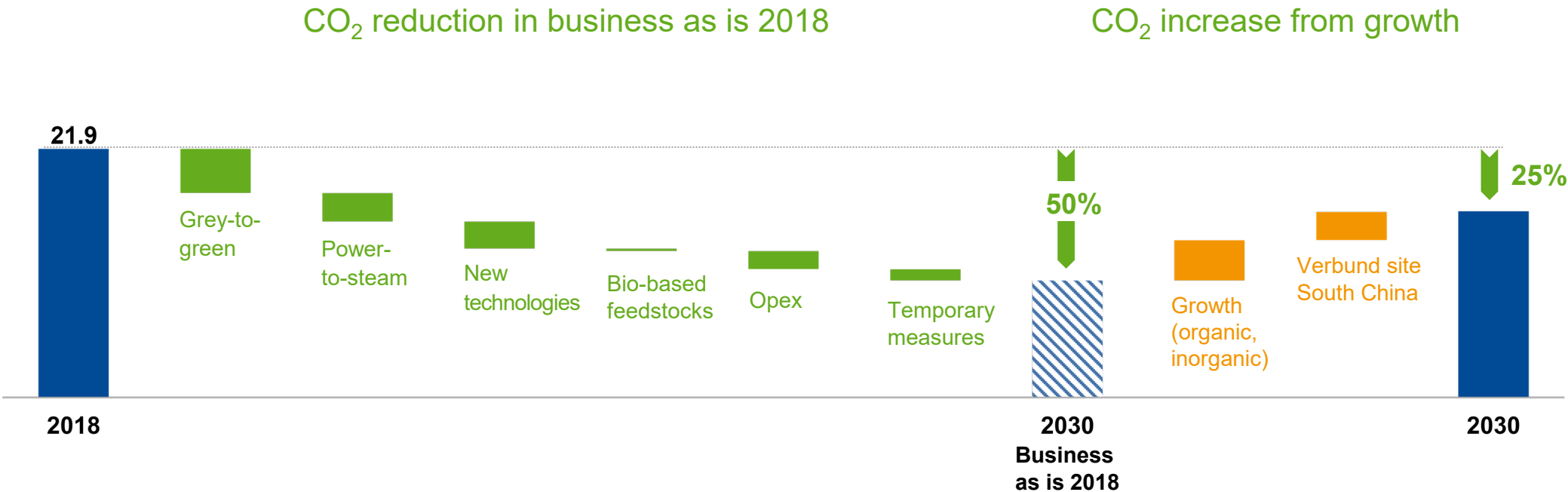
BASF greenhouse gas emissions 2018
 Million metric tons per year



Our path to reduce BASF emissions from 2018 to 2030

BASF greenhouse gas emissions (Scope 1 and Scope 2) 2018–2030

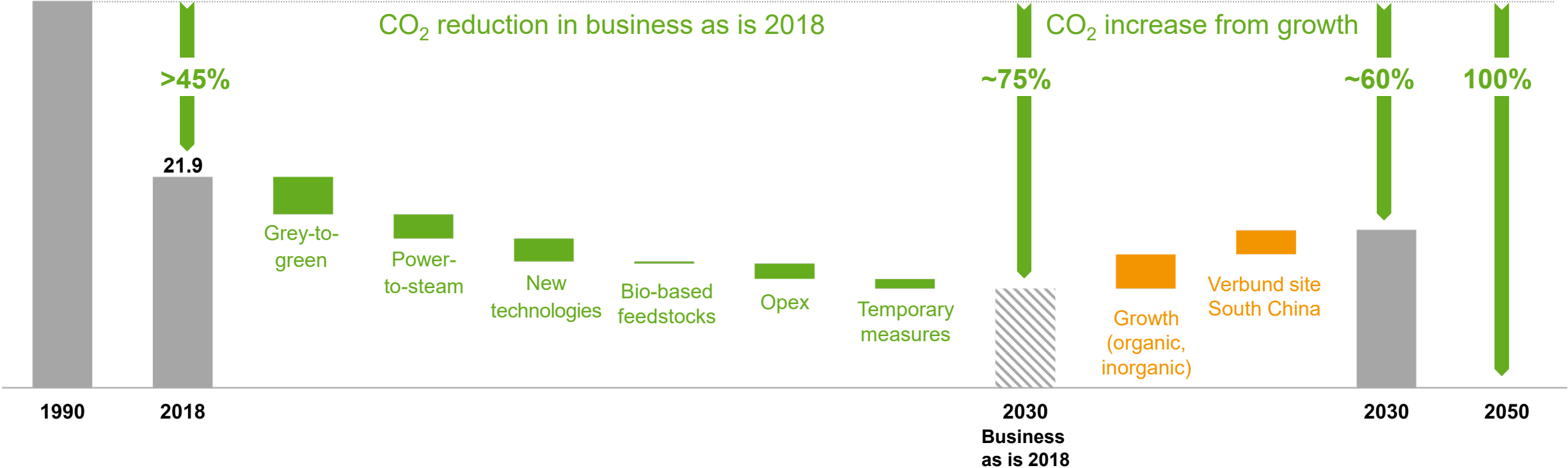
Million metric tons



Our path to reduce BASF emissions from 1990 to 2050

BASF greenhouse gas emissions (Scope 1 and Scope 2) 1990–2050

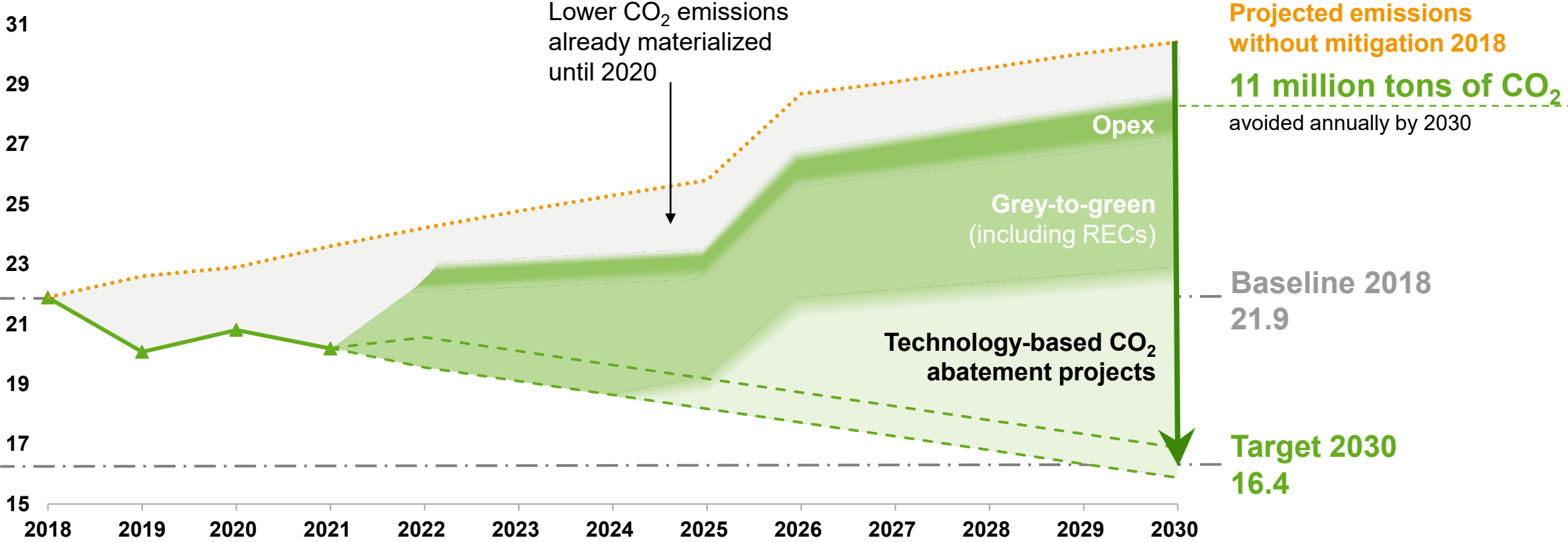
Million metric tons



Our roadmap is backed by robust calculations and solid planning

Projected BASF greenhouse gas emissions

Million metric tons CO₂ equivalents

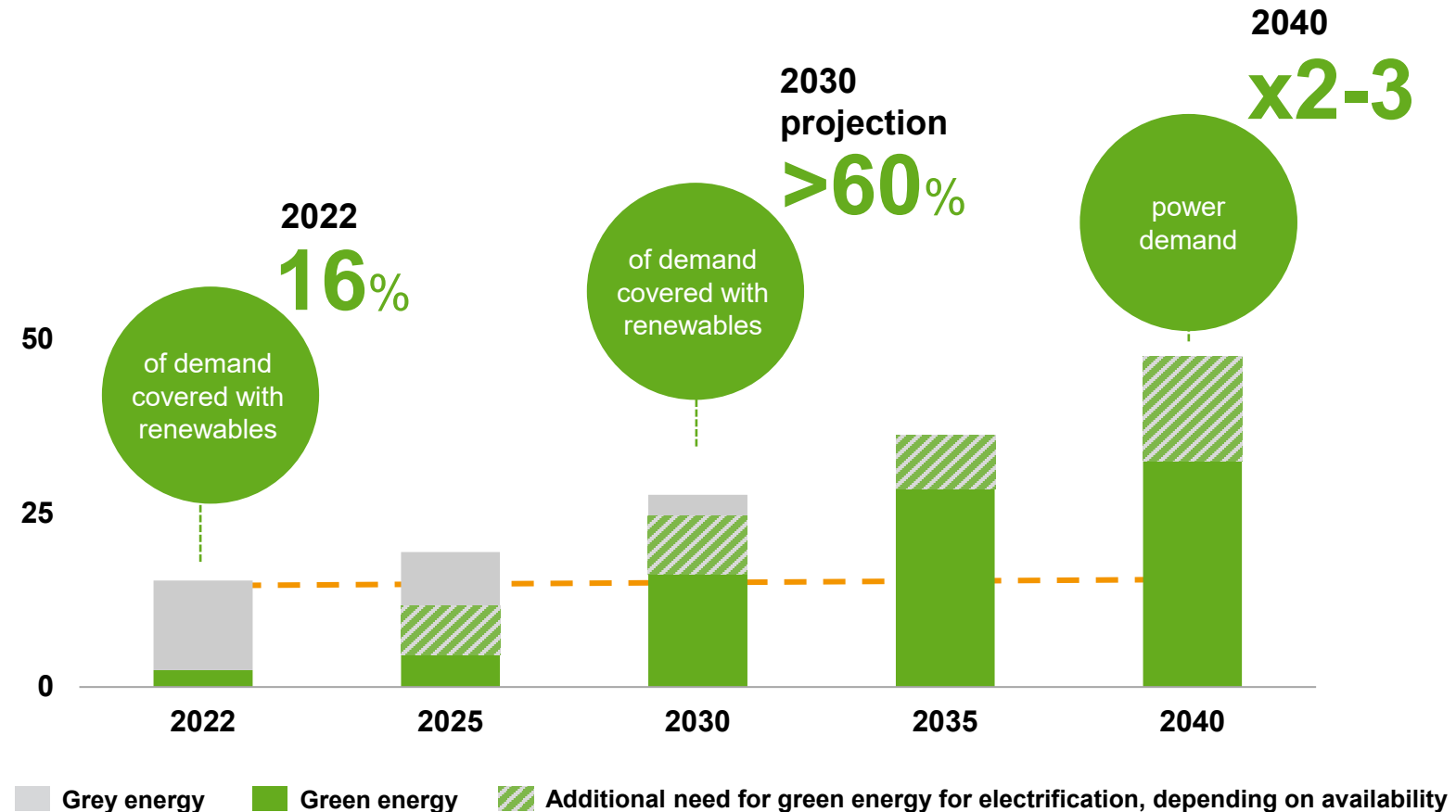


Switching our power to renewable energy will be the main driver of emission reduction until 2025



BASF global power demand and renewable supply projection

Terawatt hours



- BASF aims to source **more than 60% of its power needs from renewable sources by 2030**
- BASF **power consumption** expected to **increase strongly** due to electrification on our journey to net zero
- BASF pursues a **make-and-buy strategy** to secure access to renewable power
- Early investments in renewable power assets expected to offer **advantageous economics in the future**

BASF drives forward renewable energy projects worldwide



Hollandse Kust Zuid – world’s largest wind park



On-site solar park Schwarzheide, Germany



25 years onshore wind power from Spain



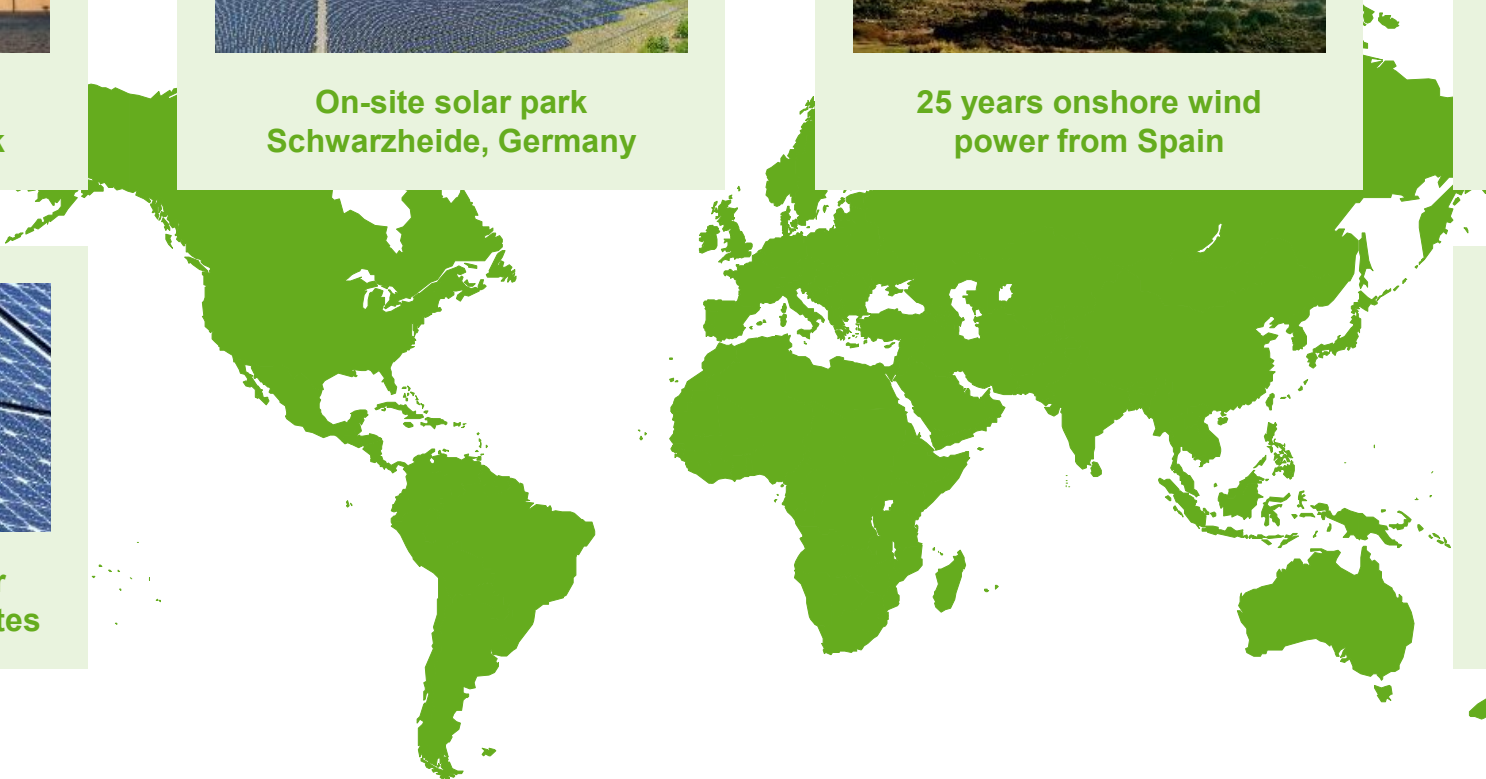
25 years offshore wind power from Germany



Wind and solar power for sites across the United States



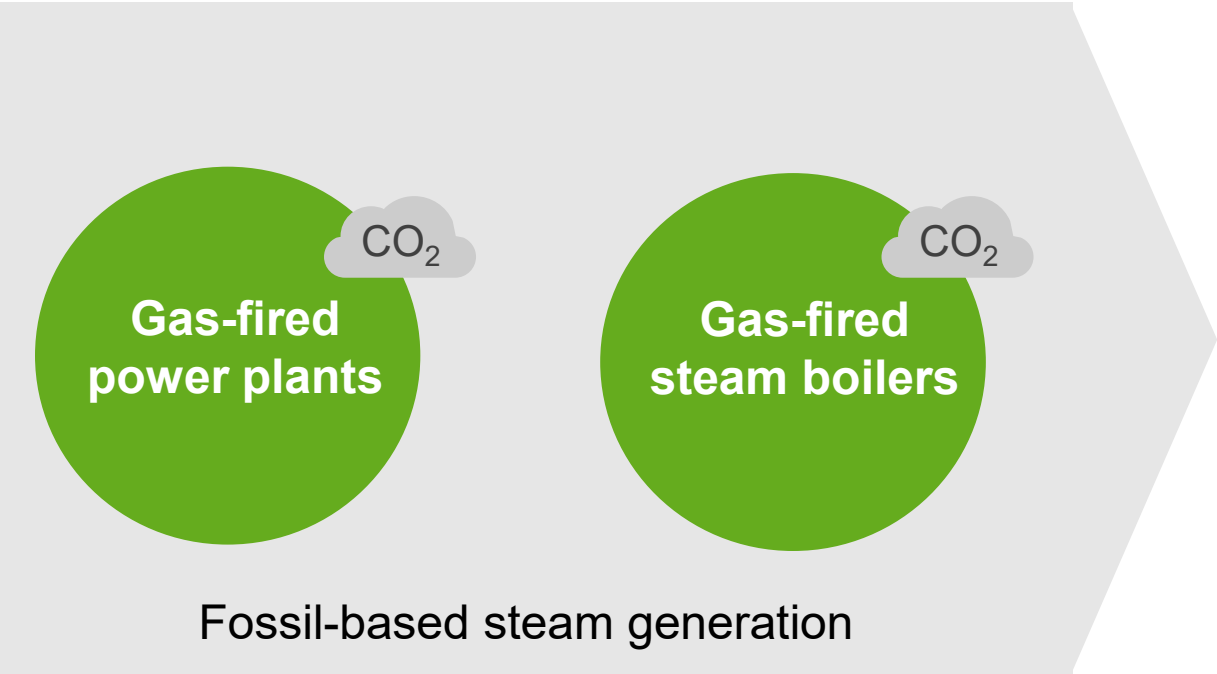
Renewable power for several Chinese sites



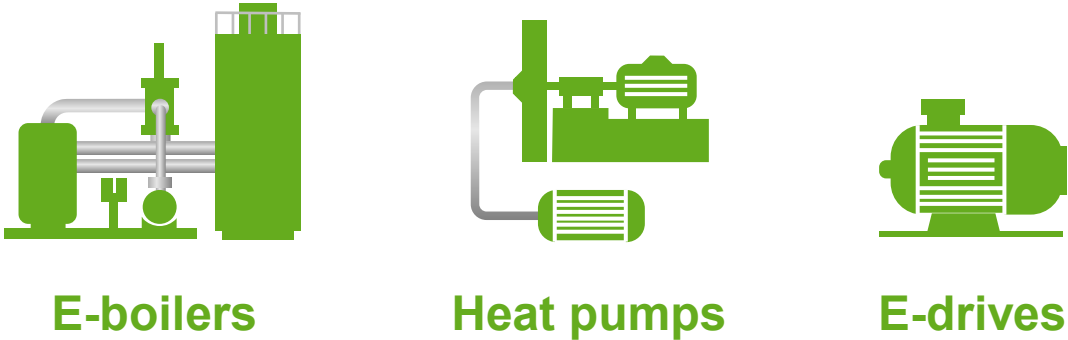
High potential from changing to power-to-steam allows decoupling from electricity supply



Current situation



Future situation

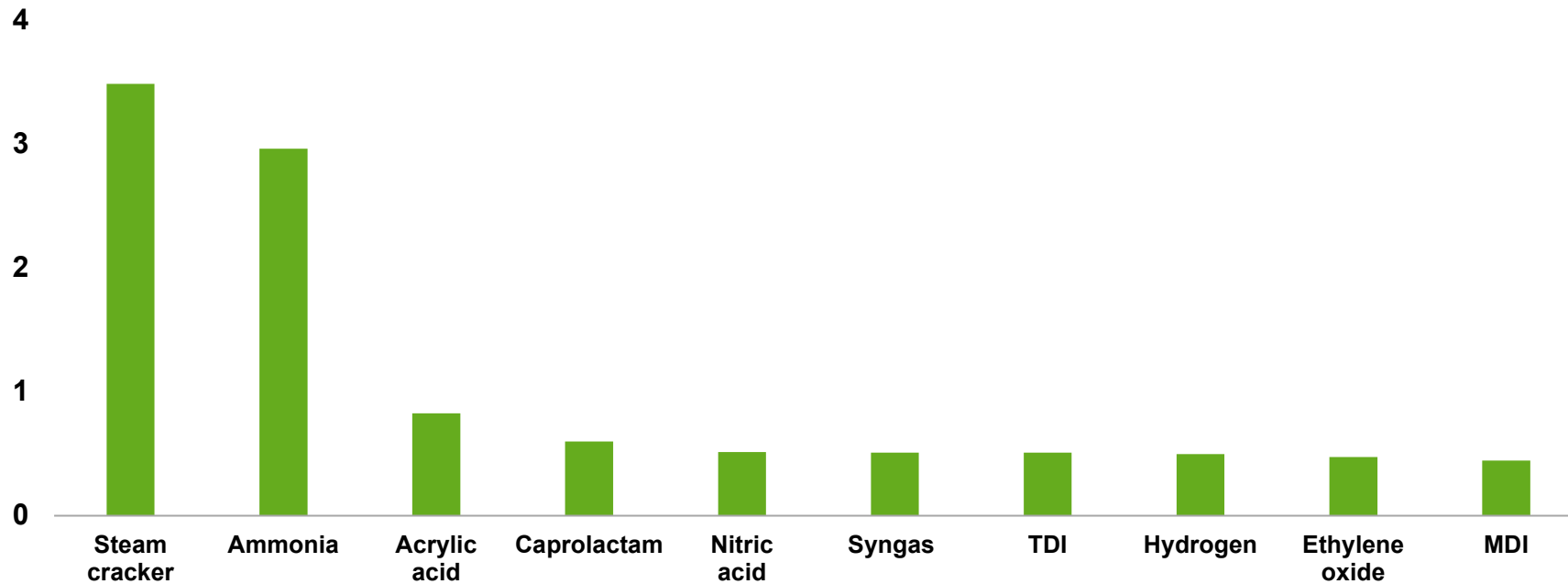


Electrification of steam generation and reduction of steam consumption

Ten base chemical production technologies cause the majority of BASF's CO₂ emissions

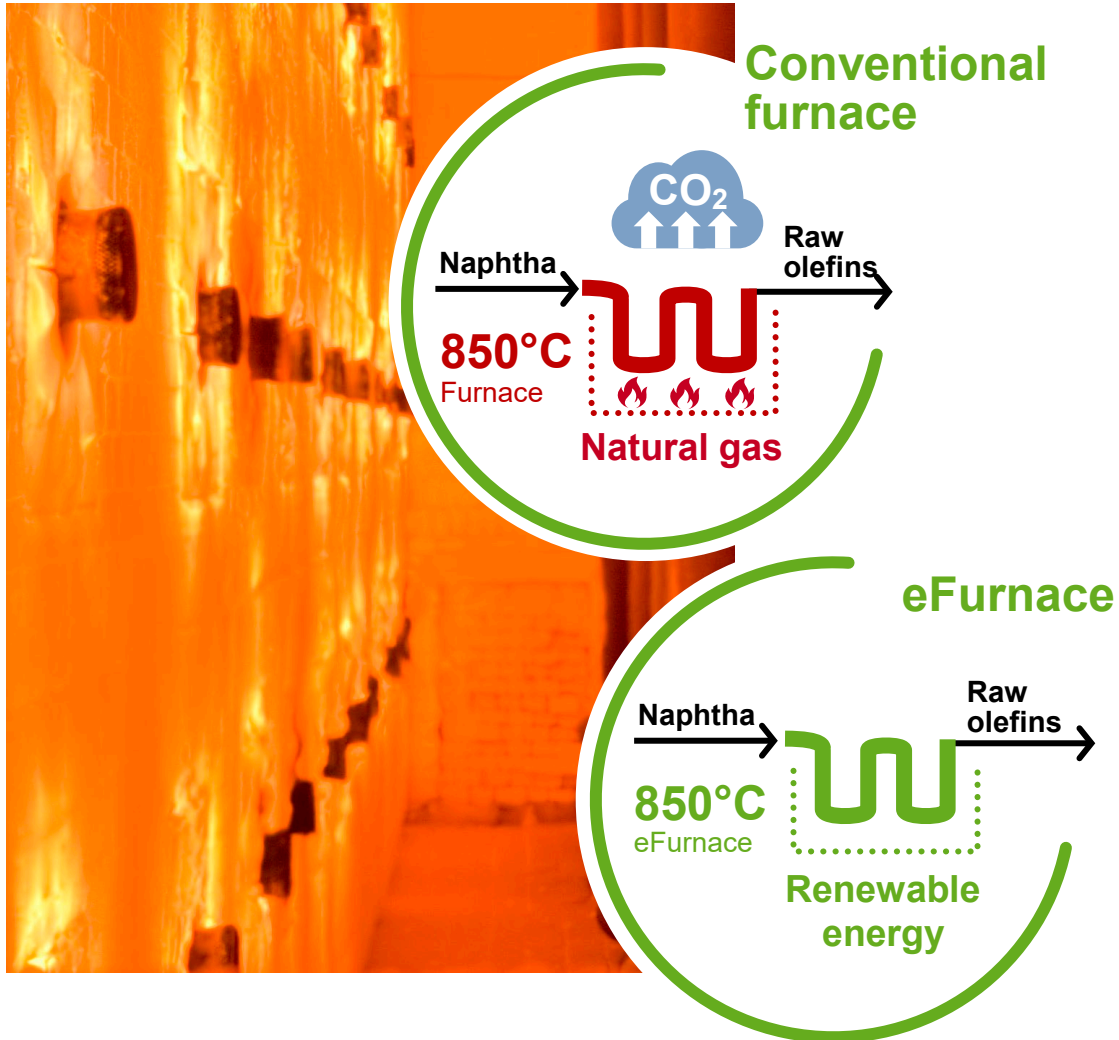
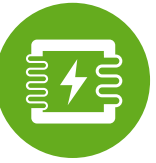


Greenhouse gas emission profile of BASF technologies
Energy and chemistry emissions, million metric tons per year¹



BASF has identified its CO₂-intensive processes and is addressing them

Construction started on world's first demonstration plant for large-scale electrically heated steam cracker furnaces



- Construction of demonstration plant started at Ludwigshafen Verbund site in **cooperation with SABIC and Linde**
- Potential to **reduce** process-related **emissions by at least 90%**
- **Funding granted** by German Federal Ministry for Economic Affairs and Climate Action and financed by the European Union
- **Startup** of the demonstration plant **planned for 2023**

Supported by:



on the basis of a decision
by the German Bundestag



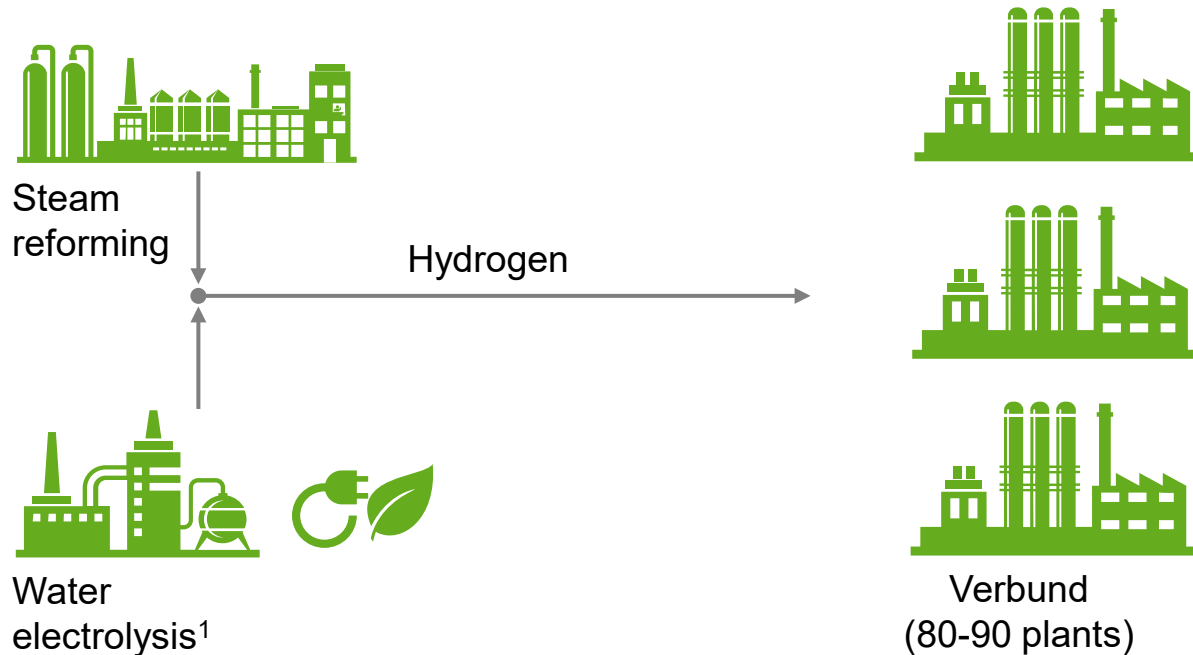
Funded by
the European Union
NextGenerationEU

BASF
We create chemistry

Water electrolysis plant will integrate internally produced green hydrogen into our Verbund

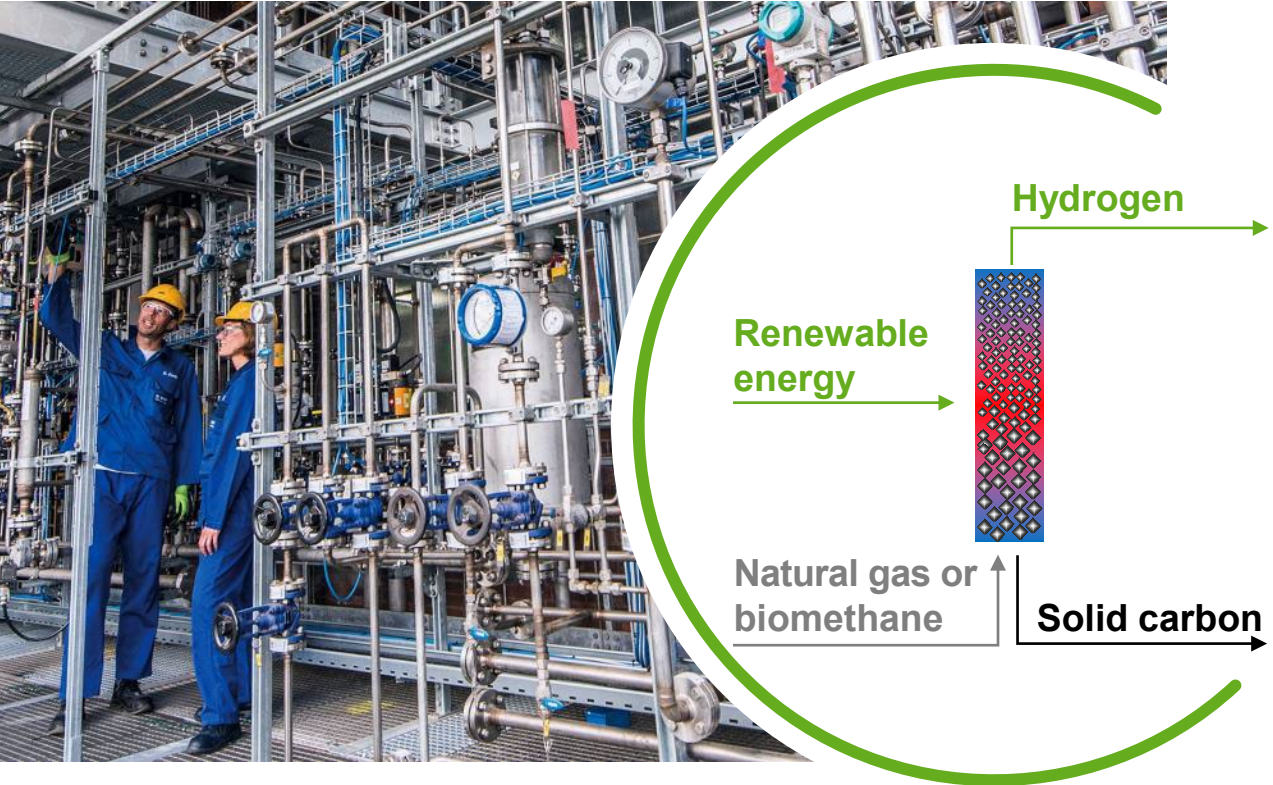


Seamless integration into BASF Verbund Schematic



- **Shortlisted for public funding** by German Federal Ministry for Economic Affairs and Climate Action
- **Startup** of water electrolysis **targeted for 2024**, investment of more than €90 million, capacity of 8,000 metric tons H₂
- Hydrogen to be used in **BASF Verbund** and for **local community hydrogen mobility market**

Methane pyrolysis combines low emissions with low energy demand

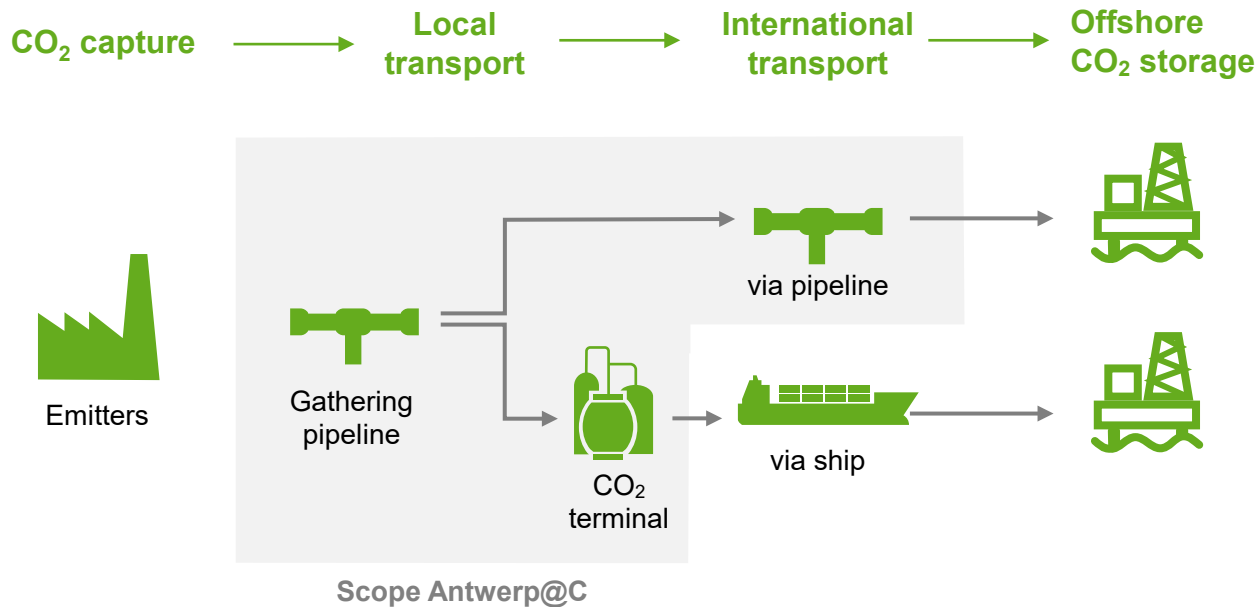


- **Methane pyrolysis** requires around **80% less electricity** than water electrolysis
- **Funding** for pilot reactor **was granted** by German Federal Ministry of Education and Research¹
- **Milestone achieved:** Pilot reactor at the Ludwigshafen site started successfully in Q2 2021
- Startup of **first commercial plant** projected before **2030**

Verbund site Antwerp: CCS is a mature drop-in solution for large-scale process emission abatement



Full cross-border CCS value chain

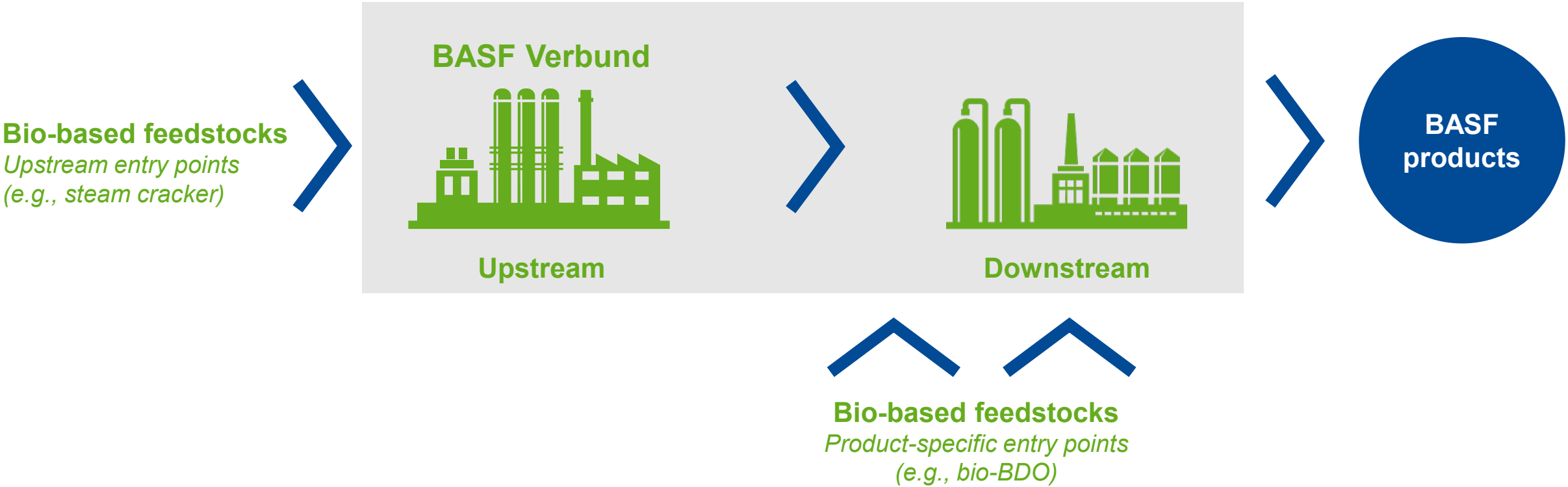


- Project consortium **Antwerp@C** has entered the FEED phase for CO₂ infrastructure in the port of Antwerp; BASF is one of the founding members
- Project **Kairos@C** – a consortium of BASF and Air Liquide – has entered the project engineering phase at BASF’s Antwerp Verbund site
- International **cross-border CCS value chain** aiming to reduce BASF’s CO₂ emissions in Antwerp by 1 million tons per year in a first step
- Planned to be **operational by 2026**



Co-funded by
the European Union

Entry points for bio-based feedstocks in BASF value chains



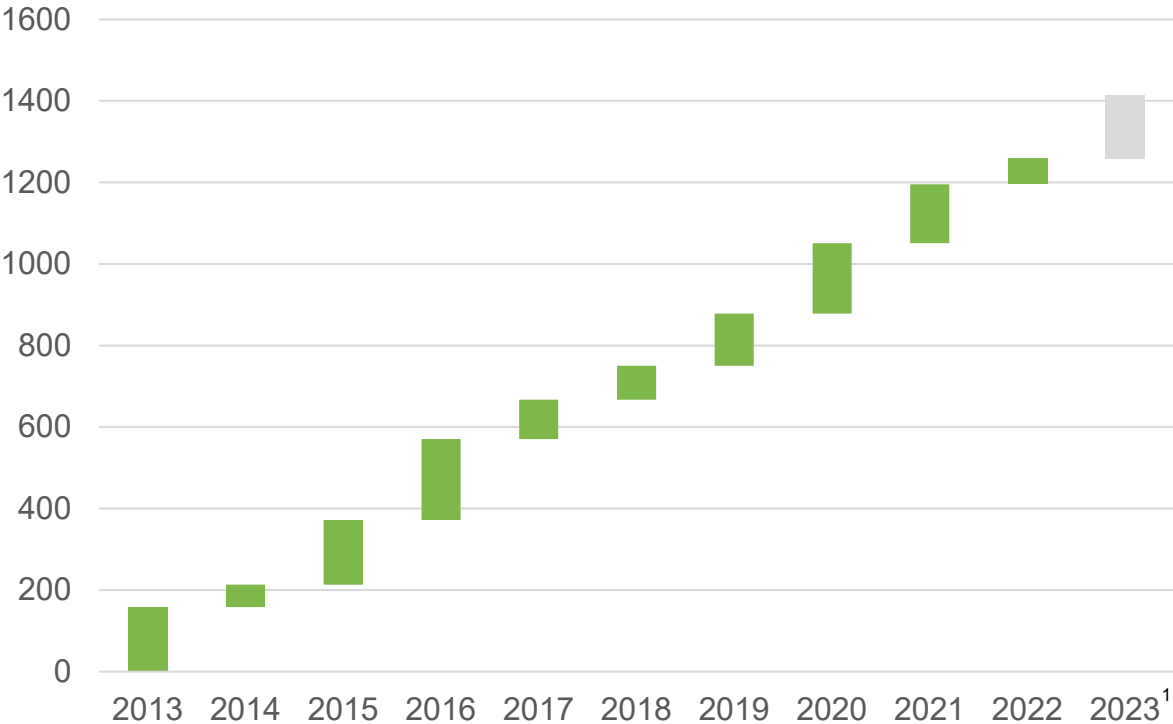
In the BASF Verbund, bio-based feedstocks can be used as a drop-in solution, in part using new, dedicated processes

Operational excellence – a lever to continuously increase our energy efficiency and avoid CO₂ emissions



Reduction of CO₂ emissions through operational excellence measures

Kilo tons per year, cumulative



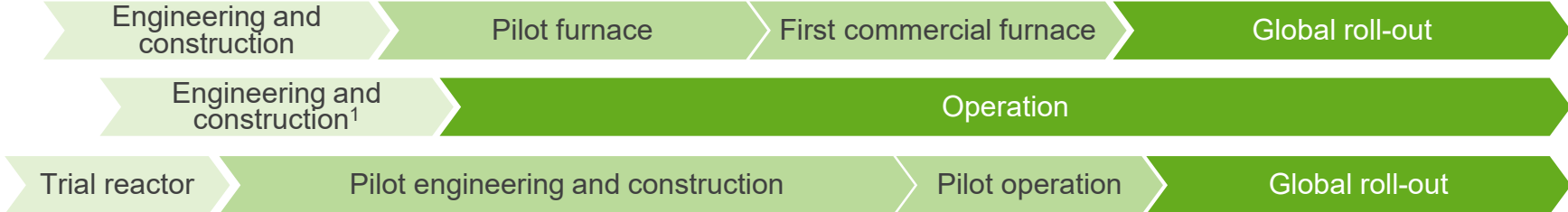
- Opex measures helped to **reduce CO₂ emissions by more than 1.2 million tons** from 2013 to 2022
- In 2022, more than **500 opex measures** were realized that reduced CO₂ emissions
- Examples:
 - Modification to wastewater treatment process **reduced heat demand** and resulting **CO₂ emissions** by more than **2,500 tons per year**
 - New residue incineration line allows more efficient steam production, **avoiding more than 5,000 tons of CO₂ emissions per year**

Structured approach to capex spending

Current project pipeline and projected capex

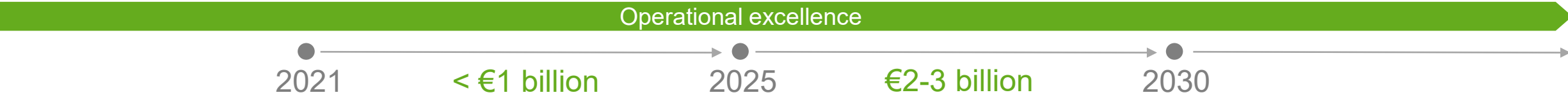
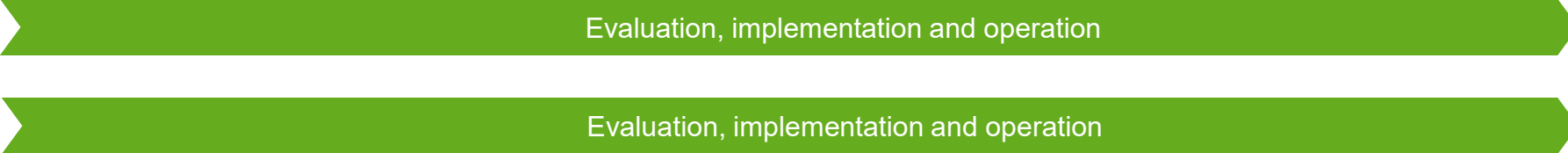
Pilot scale

- eFurnace
- Water electrolysis
- Methane pyrolysis



Commercial scale

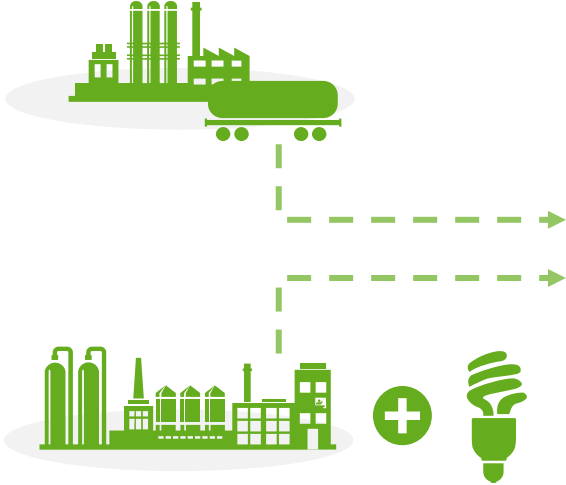
- CCS/CCU
- Power-to-heat projects (heat pumps, e-boilers and e-drives)



¹ Depending on public funding

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



CO₂



Product carbon footprints of sales products

Customer benefits

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

Scope 1 + 2
Emissions caused by own operations¹

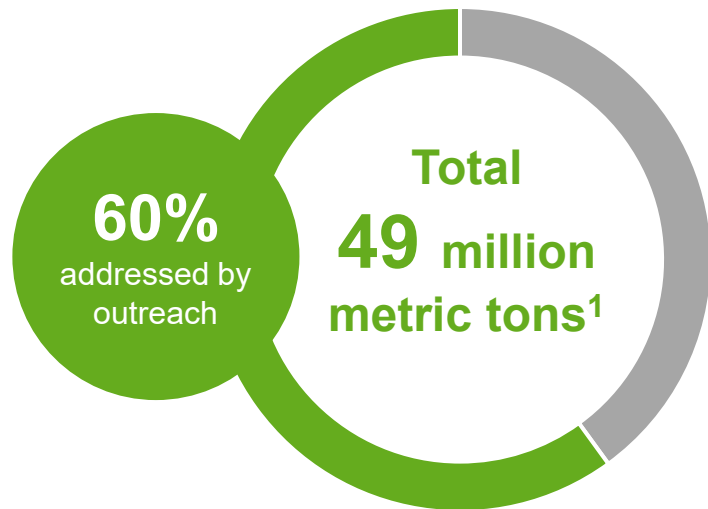
- TÜV-certified²
- Meets ISO standards³
- Calculates product carbon footprints cradle-to-gate

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



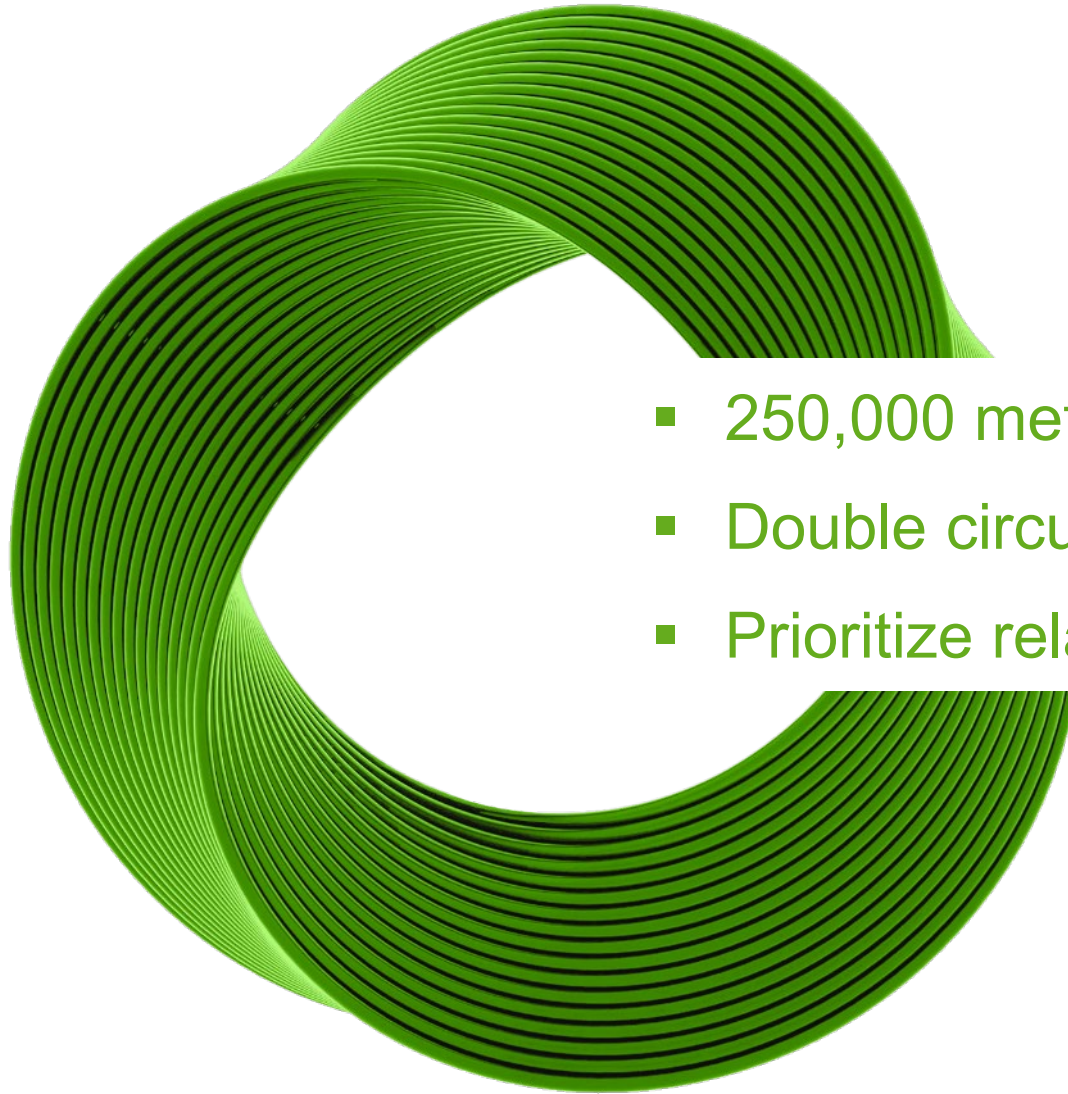
We create transparency on the CO₂ emissions of our raw materials as an important step in reducing BASF's Scope 3 emissions

BASF's CO₂e emissions from raw material purchase 2022



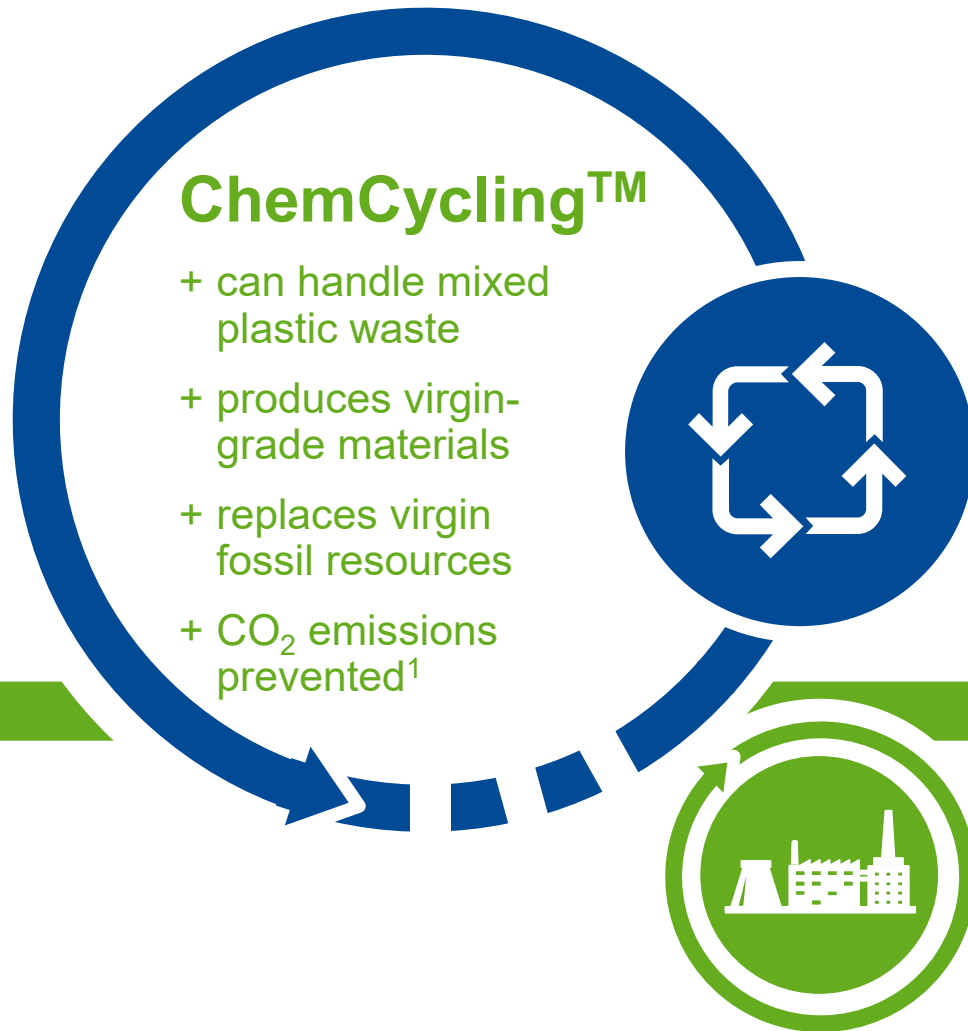
- BASF is supporting various initiatives to **develop and establish workable standards** for the chemical industry
- **Supplier CO₂ Management Program rolled-out** in 2021 to collect specific PCFs and align on reduction targets
- More than **1,300 suppliers** have been approached since starting the program, accounting for **60% of Scope 3 emissions¹**
- Collaboration through **knowledge sharing on PCF calculation methodology** ongoing to ensure engagement and quality of data
- First suppliers have **committed to reducing** their emissions
- **BASF will make PCFs a buying criterion** to ensure PCF reduction of its sales products

BASF's Circular Economy Program: Targets



- 250,000 metric tons of circular feedstock by 2025
- Double circular sales to €17 billion by 2030
- Prioritize related capex, M&A, R&D

From a linear to a more circular economy – BASF contribution: ChemCycling™



Creating value from waste

- BASF works with technology partners specialized in converting mixed plastic waste and end-of-life tires into liquid feedstock (pyrolysis oil)
- The recycled raw material is fed into BASF's value chains
- Pyrolysis oil is used to produce mass-balanced Cycled™ materials for industries like automotive, packaging and textiles

- Incineration
- Landfill
- Littering

Protecting biodiversity is a key element of our commitment to sustainability



- We published our position on Forest Protection in June 2020
- We are working on increasing supply chain sustainability, for example through our Palm Sourcing Policy

- We take into consideration preservation of biodiversity in the management of our sites
- We systematically assess sustainability aspects for expansions or constructions of sites

- We ensure our products are appropriately used by offering customer trainings
- We commit to the Responsible Care® charter of the International Council of Chemical Associations (ICCA)

Initiatives



We are engaging in dialogs with a variety of stakeholders, for example:

- the Roundtable on Sustainable Palm Oil (RSPO)
- the Alliance to End Plastic Waste (AEPW)
- the BASF FarmNetwork Sustainability
- the MataViva® Initiative

We source responsibly and strive to improve sustainability performance in the supply chain



- Goal: Cover 90% of our relevant spend¹ with sustainability evaluations by 2025 (2022: 85%), and have 80% of our suppliers improve their sustainability performance upon re-evaluation (2022: 76%)
- Supplier Code of Conduct rooted in internationally recognized standards such as the principles of the UN Global Compact and the International Labor Organization
- Engaged in numerous initiatives to improve sustainability performance and working conditions in the supply chain, e.g., Global Battery Alliance (GBA), Responsible Cobalt Initiative (RCI), Roundtable on Sustainable Palm Oil (RSPO)
- Founding member of the “Together for Sustainability” initiative for the joint evaluation of suppliers:
 - 8,386 online assessments and 378 audits carried out by an independent service provider for member companies in 2022
 - BASF itself is assessed and was ranked among the top 1% of companies in 2022



RSPO | Roundtable on Sustainable Palm Oil

¹ We understand relevant spend as procurement volumes with relevant suppliers. We define relevant suppliers as Tier 1 suppliers showing an elevated sustainability risk potential as identified by our risk matrices and our purchasers' assessments. We also use further sources of information to identify relevant suppliers such as evaluations from Together for Sustainability (TfS), a joint initiative of chemical companies for sustainable supply chains.

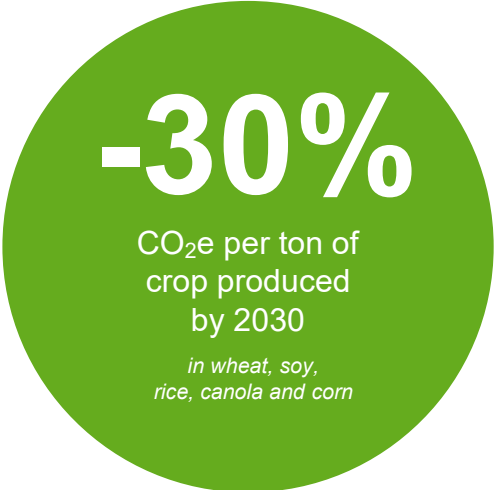
Global water stewardship – strong commitment to local water management



- Further increase of water stress areas expected worldwide (climate change, population growth and economic development)
- Growing competition among water users expected (e.g., households, agriculture, industry)
- In 2022, BASF achieved the top rating of A in CDP's Water Security List (previous year: A-)
- Goal: Introduction of sustainable water management at our Verbund sites and at all production sites in water stress areas by 2030, covering 89% of BASF's total water abstraction
 - Water stress areas are regions where more than 40% of available water is used by industry, households and agriculture
 - Status 2022: 61.6%

Our sustainability commitments as a leader in agriculture

Climate Smart Farming



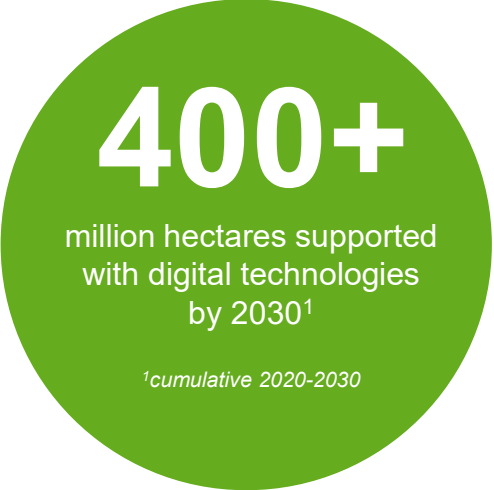
Supporting farmers to become more **carbon efficient** and **resilient** to volatile weather conditions

Sustainable Solutions



Steering our portfolio systematically to increase the share of **sustainable solutions** we bring to farmers year by year

Digital Farming



Helping farmers to grow **profitably** and reduce their **environmental footprint**

Smart Stewardship



Striving for zero farming incidents that impact human health and the environment

Engaged employees – proud ambassadors for what BASF stands for



- BASF's employees and their engagement are key to enable our long-term business success
- Annual goal: More than 80% of our employees feel that at BASF, they can thrive and perform at their best
- To measure the engagement, we
 - collect regular feedback of our employees
 - engage our employees in discussions on the results
 - identify improvement areas and drive follow-up activities
 - report on the current status in the BASF Report
- Global survey “Employee Voices” in 2022: 81% of all participants agreed to the statement that at BASF they can thrive and perform at their best

Corporate Governance – Two-tier management system of BASF SE



- Transparent and effective separation of company management and supervision
- Reasonable level of diversity, e.g., with respect to gender:
 - Board of Executive Directors: 17% female members
 - Supervisory Board: 33% female members

Identifying and assessing sustainability topics: Materiality analysis 2022

- Twelve topics are identified considering impact materiality as well as financial materiality
- Results are integrated into our sustainability tools, processes, strategies and in our corporate reporting

Biodiversity 

Business ethics 

Circularity & resource efficiency 

Climate change adaptation 

Climate change mitigation 

Diversity, inclusion & equal work 

Human rights & labor rights 

Occupational health & safety 

Plastic waste 

Product stewardship 

Waste 

Water & wastewater 

Double materiality



Impact materiality
(impact by BASF)

Impacts of our activities along the value chain¹



Financial materiality
(impact on BASF)

Financial impacts of ESG topics on our performance¹

¹ Actual and potential as well as positive and negative impacts are considered.

We create chemistry for a sustainable future – overview of sustainability goals and KPIs¹

Effective climate protection

Reduce our absolute CO₂ emissions² by 25% by 2030 (baseline 2018)

Target

≤ 16.4 million metric tons

2022 status

18.4 million metric tons

SDG



Employee engagement and diversity

Increase the proportion of women in leadership positions with disciplinary responsibility to 30% by 2030

Target

30%

2022 status

27.2%

SDG



Achieve net zero CO₂ emissions² by 2050



More than 80% of our employees feel that at BASF, they can thrive and perform at their best

Target

> 80%

2022 status

81%⁴



Resource efficiency and safe production

Reduce worldwide process safety incidents per 200,000 working hours to ≤ 0.1 by 2025³

Target

≤ 0.1

2022 status

0.3

SDG



Reduce the worldwide lost-time injury rate per 200,000 working hours to ≤ 0.1 by 2025³

Target

≤ 0.1

2022 status

0.3



Introduce sustainable water management at our production sites in water stress areas and at our Verbund sites by 2030

Target

100%

2022 status

61.6%



Responsible procurement

Cover 90% of our relevant spend with sustainability evaluations by 2025

Target

90%

2022 status

85%



Have 80% of our suppliers improve their sustainability performance upon re-evaluation

Target

80%

2022 status

76%



¹ Targets as presented in the BASF Report 2022

² Scope 1 and Scope 2 emissions (excluding the sale of energy to third parties, including offsetting). The target includes other greenhouse gases according to the Greenhouse Gas Protocol, which are converted into CO₂ equivalents (CO₂e). The baseline year is 2018.

³ We will update the safety targets and report according to a new system in 2023.

⁴ We regularly calculate the employee engagement level. The most recent survey was conducted in 2022.

BASF in sustainability ratings and rankings

MSCI ESG Research

In 2022, BASF was rated A. The analysts highlighted that BASF is present in clean tech markets and has a robust carbon mitigation strategy.



CDP Disclosure Leadership

In 2022, BASF achieved scores of A in “Water” and A- in “Climate” and “Forests,” thus attaining leadership status in all categories we are participating in.



Morningstar Sustainalytics

BASF belongs to the best category for “diversified chemicals” with a medium ESG risk and was recognized for its strong risk management, e.g., in the areas of CO₂, emissions, wastewater and waste as well as occupational health and safety.



FTSE4Good Global Index

BASF was again included in the FTSE4Good Global Index in 2022 and is top class in terms of ESG among chemical companies included in the index.



FTSE4Good

ISS ESG

In 2022, BASF held its Prime Status (B-), being among the top 7% of the companies assessed.





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