



We create chemistry

# We create chemistry for a sustainable future

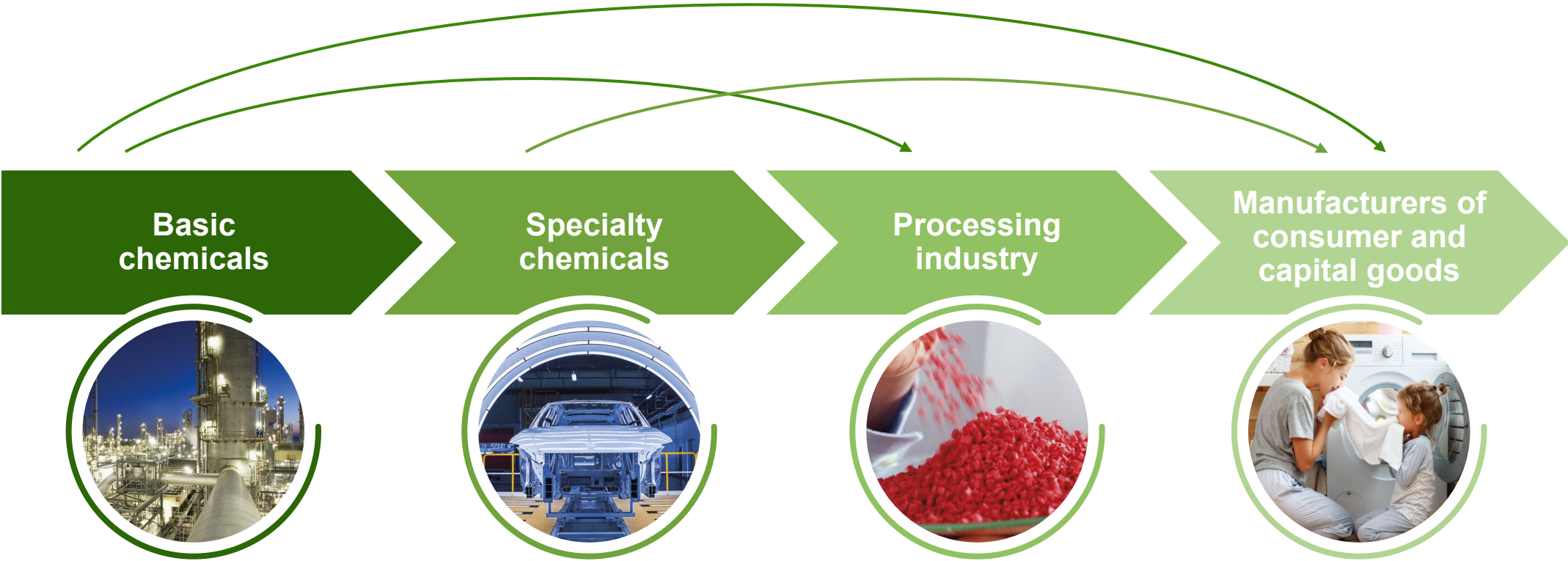
BASF ESG Investment Story  
April 2024



# 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 in particular those discussed in Opportunities and Risks on pages 173 to 183 of the BASF Report 2023. BASF does not assume any obligation to update the forward-looking statements contained in this presentation above and beyond the legal requirements.*

# The chemical industry is the starting point of almost all value chains



# Resource efficiency – BASF's Verbund is ideal for CO<sub>2</sub> emission reduction



- Combined heat and power plants and integrated energy Verbund avoided 5.7 million metric tons of CO<sub>2</sub>e emissions in 2023
- Synergies in logistics and infrastructure, minimization of waste
- European emissions trading benchmarks show that BASF's chemical plants operate at above-average energy efficiency

# BASF targets for Scope 1 and Scope 2 emissions

**2030**

**25%**

Scope 1 and Scope 2  
CO<sub>2</sub> emission reduction  
(compared with 2018)

**2050**

**net zero**

Scope 1 and Scope 2  
CO<sub>2</sub> emissions

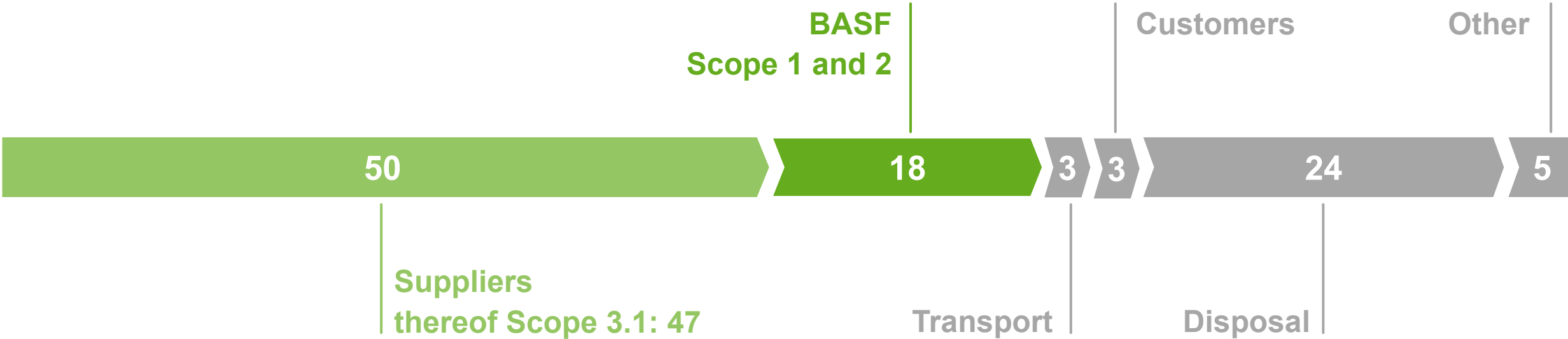
# BASF reports emissions along the entire value chain

## Greenhouse gas emissions along the BASF value chain in 2023<sup>1</sup>

Million metric tons of CO<sub>2</sub> equivalents

Scope 3 upstream

Scope 3 downstream

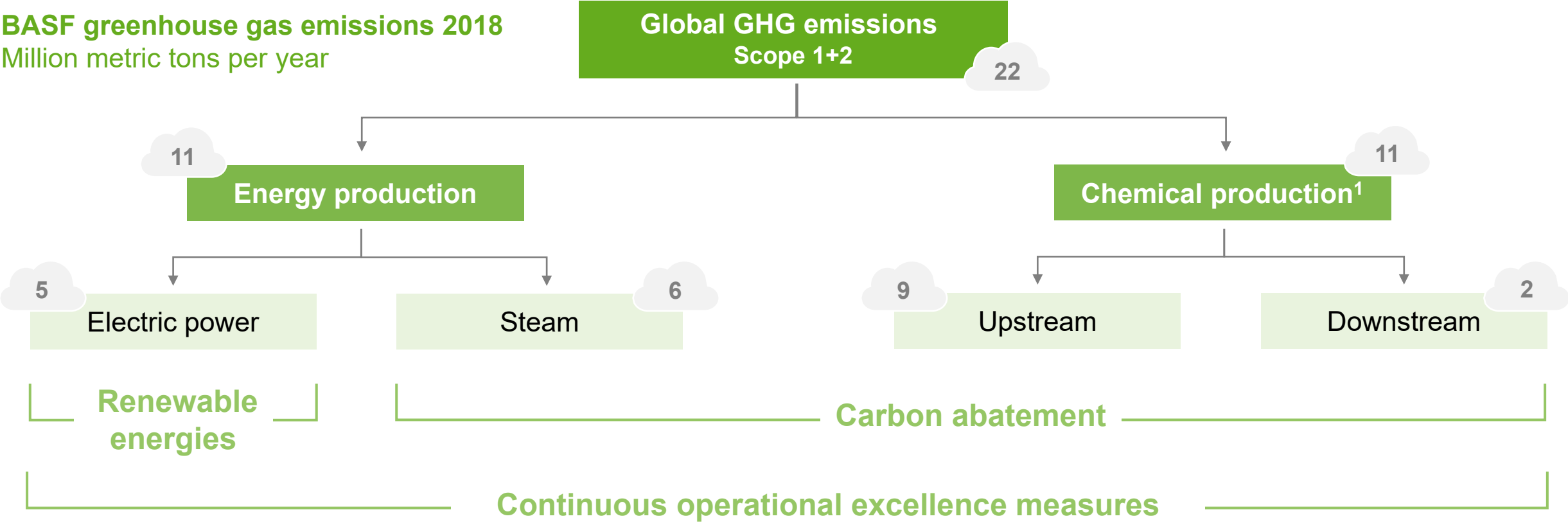


<sup>1</sup> See BASF Report 2023, page 108



# No downstream decarbonization without upstream decarbonization

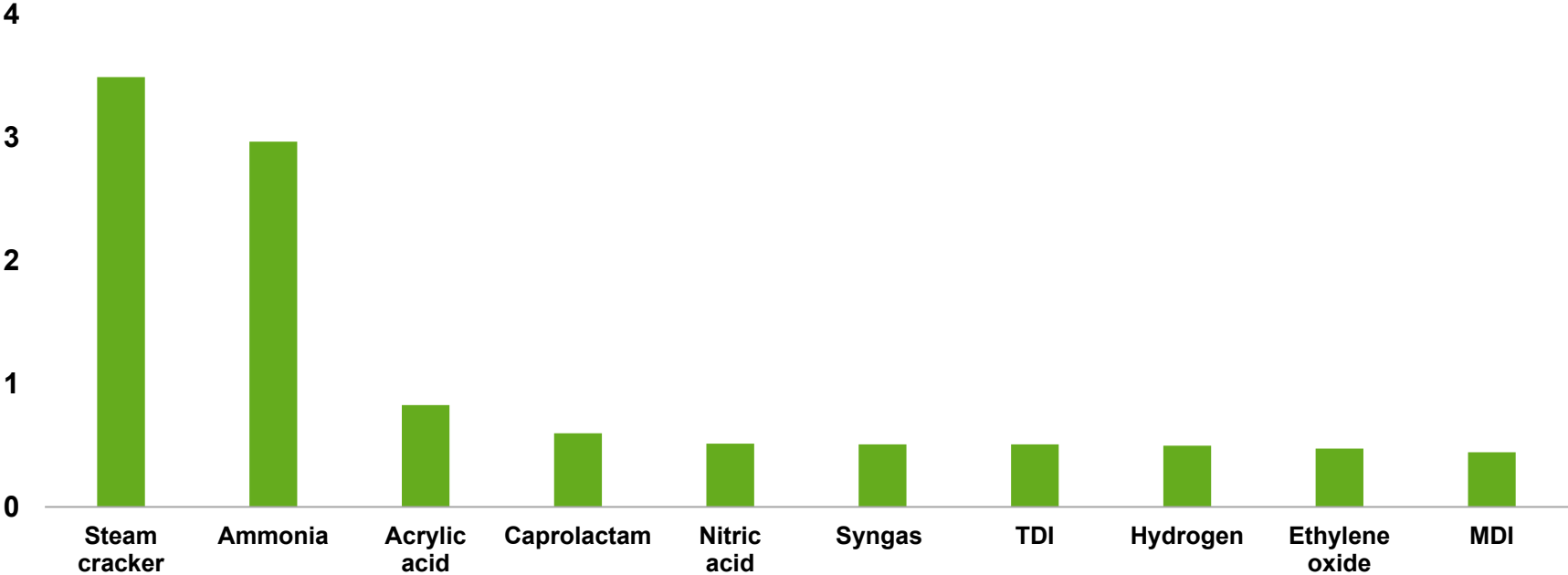
**BASF greenhouse gas emissions 2018**  
 Million metric tons per year



<sup>1</sup> Includes emissions from process energy

# Ten base chemical production technologies cause the majority of BASF's CO<sub>2</sub> emissions

Greenhouse gas emission profile of BASF technologies  
Energy and chemistry emissions, million metric tons per year<sup>1</sup>



BASF has identified its CO<sub>2</sub>-intensive processes and is addressing them

<sup>1</sup> Based on nameplate capacities, March 2021, excluding at-equity consolidated companies

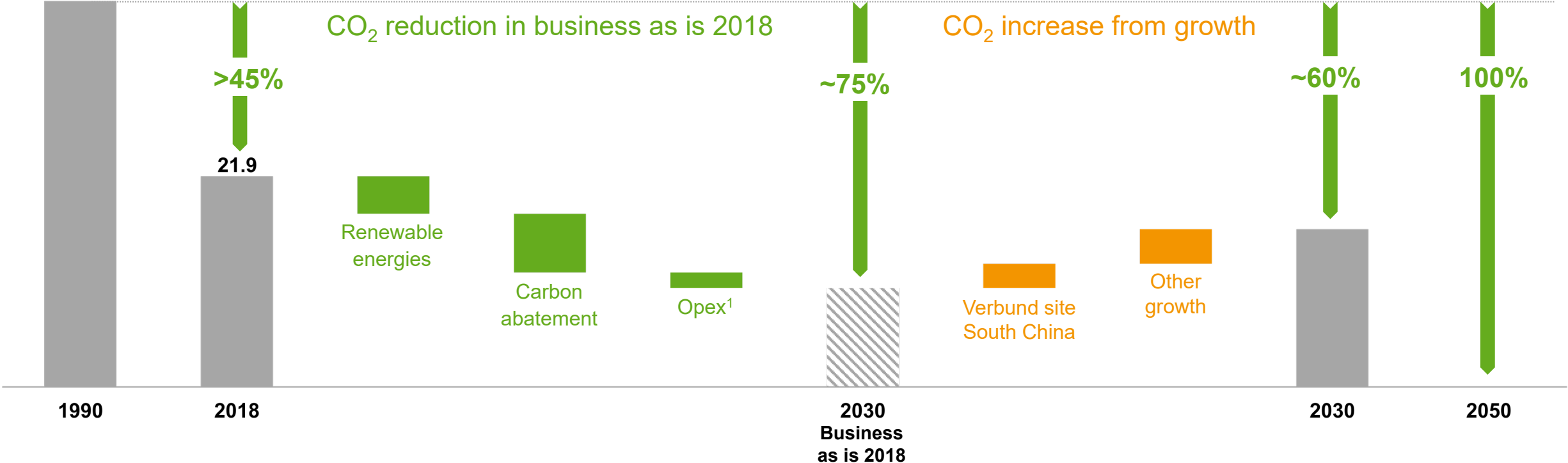




# Our path to reduce BASF emissions from 1990 to 2050

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

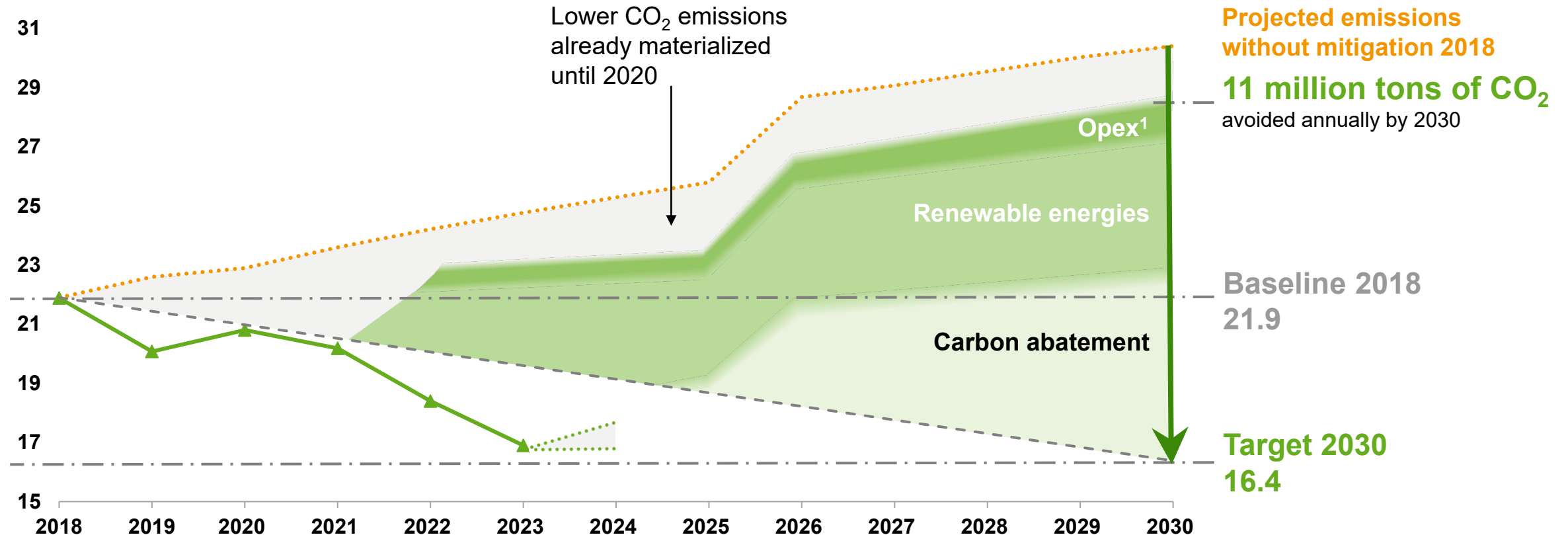
Million metric tons



# We have a well-filled portfolio of projects to reach our 2030 target

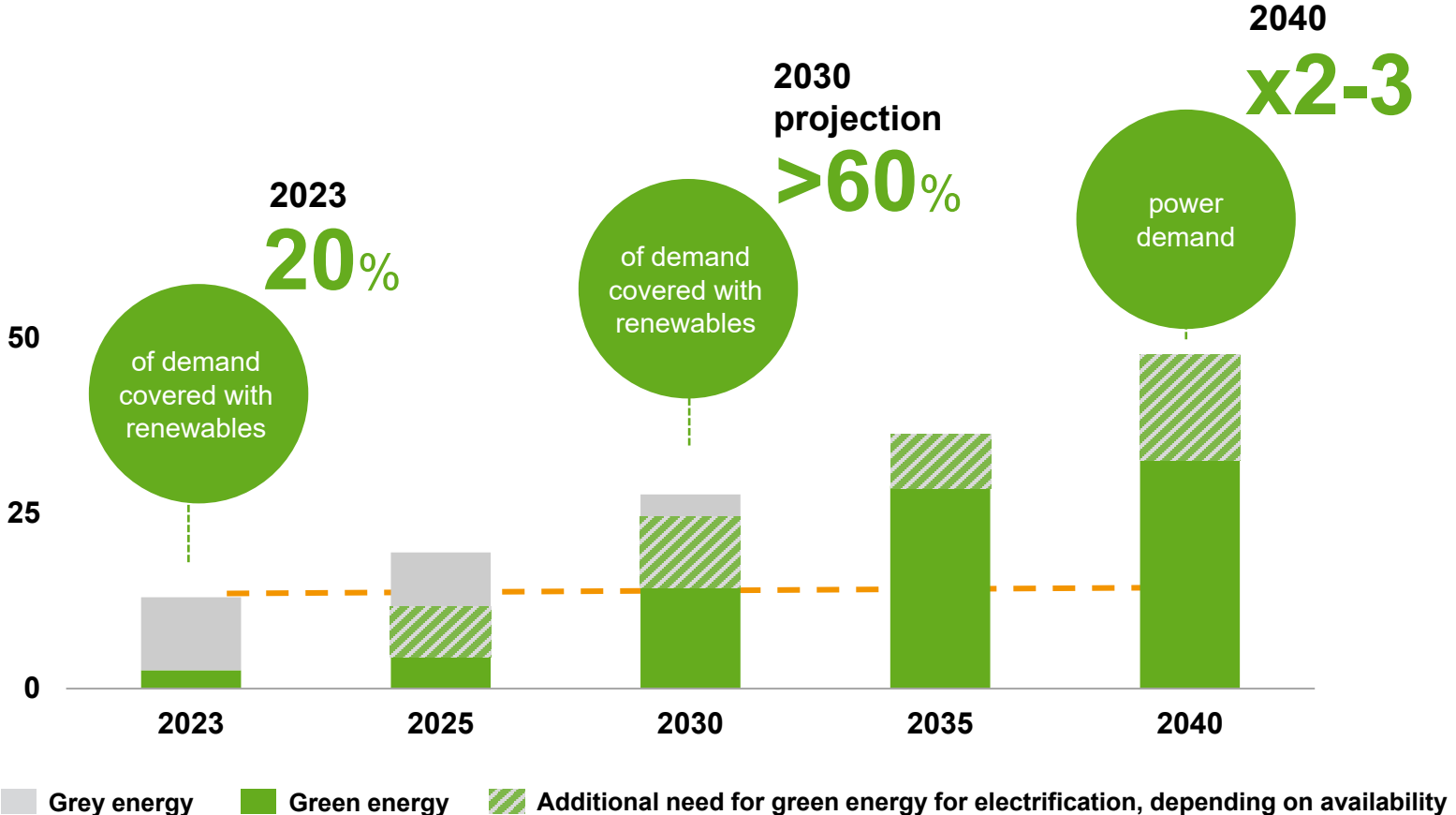
## Projected BASF greenhouse gas emissions (Scope 1 and 2)

Million metric tons CO<sub>2</sub> 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

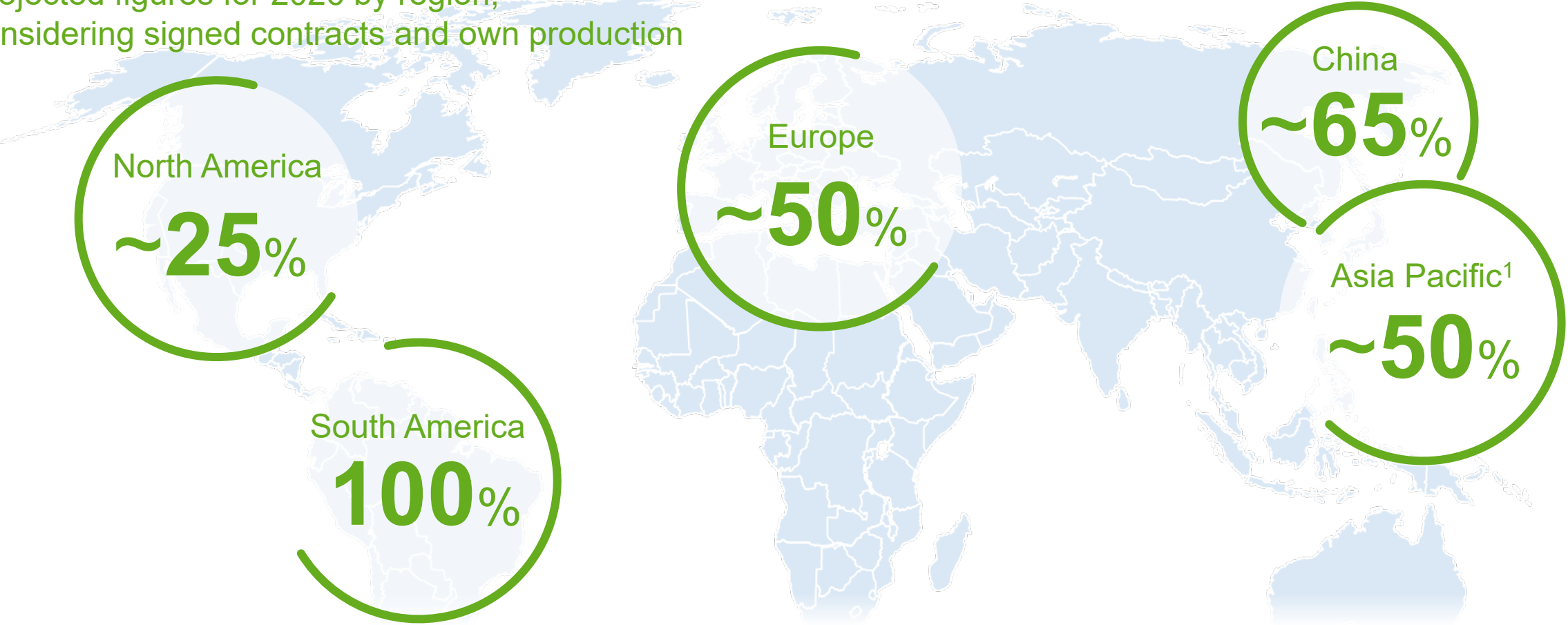


- BASF aims to source **at least 60% of its power needs from renewable sources by 2030**
- BASF **power consumption** expected to **increase strongly** due to electrification on our journey to net zero
- BASF pursues a **make-and-buy strategy** to secure access to renewable power
- Early investments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



# On track to reaching at least 60% renewable electricity worldwide by 2030

Projected figures for 2026 by region, considering signed contracts and own production



<sup>1</sup> Including China

# We are making progress on technologies for carbon abatement

## eFurnace



**eFurnace**<sup>1</sup> demonstration plant built in Ludwigshafen with SABIC and Linde; testing of heating concepts to start in Q2 2024

Supported by:



on the basis of a decision by the German Bundestag

Funded by the European Union NextGenerationEU

## Water electrolysis



Positive funding decision for 54 MW **water electrolysis**<sup>2</sup> plant in Ludwigshafen (Hy4Chem-EI) granted in November 2023; startup planned in 2025

Supported by:

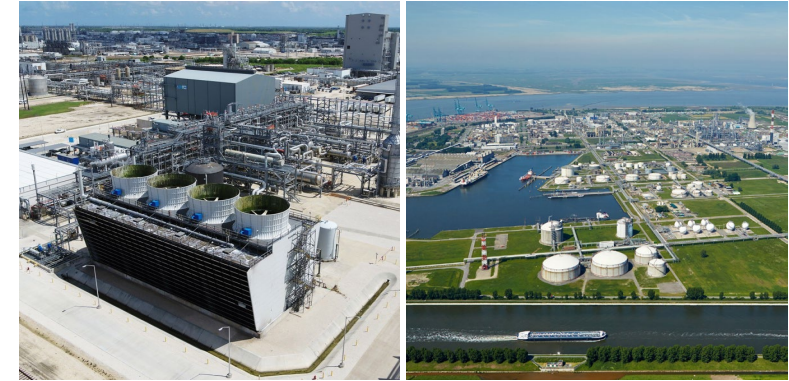


Rheinland-Pfalz

MINISTERIUM FÜR KLIMASCHUTZ, UMWELT, ENERGIE UND MOBILITÄT

on the basis of a decision by the German Bundestag

## CCS projects



BASF and Yara evaluating world-scale **blue ammonia** project using **CCS** in the United States<sup>3</sup>

**CCS project** to reduce BASF's CO<sub>2</sub> emissions in Antwerp by 1 million tons per year slated for startup in 2027



Co-funded by the European Union

<sup>1</sup> Supported by the Federal Ministry for Economic Affairs and Climate Action (BMWK) and funded by the European Union

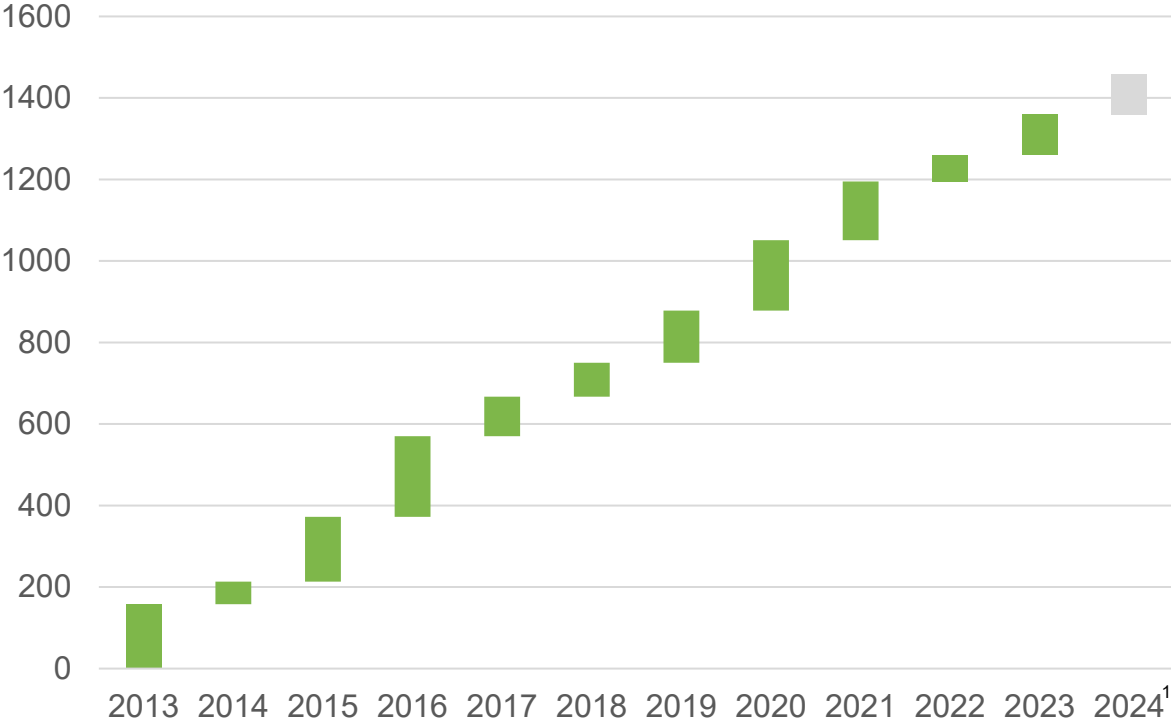
<sup>2</sup> Supported by the Federal Ministry for Economic Affairs and Climate Action (BMWK) and the State of Rhineland-Palatinate

<sup>3</sup> Total capacity 1.2 to 1.4 million tons p.a.

# Operational excellence – a lever to continuously increase our energy efficiency and avoid CO<sub>2</sub> emissions

## Reduction of CO<sub>2</sub> emissions through operational excellence measures

Kilo tons per year, cumulative



- Opex measures helped to **reduce CO<sub>2</sub> emissions by more than 1.3 million tons** from 2013 to 2023
- In 2023, more than **500 opex measures** were realized that reduced CO<sub>2</sub> emissions
- Examples:
  - Ludwigshafen, Germany: Introduction of a digital tool for energy optimization in our steam cracker resulting in **CO<sub>2</sub> emission reduction** of more than **15,000 tons per year**
  - Caojing, China: New absorption heat pump and process adjustments to harness reaction heat for steam generation, **avoiding more than 25,000 tons of CO<sub>2</sub> emissions per year**

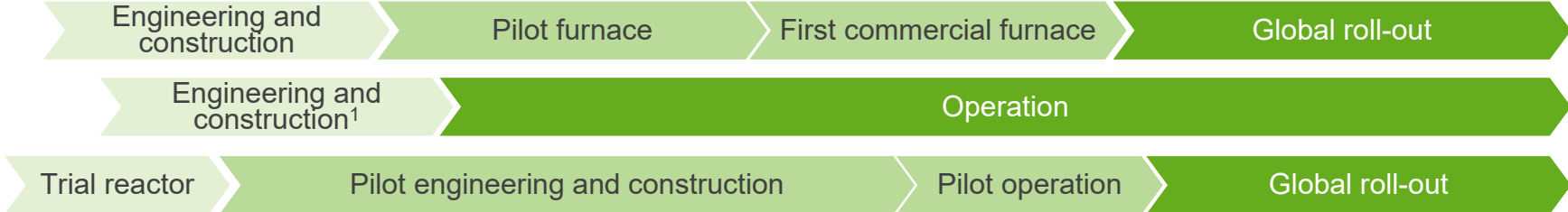


# Structured approach to capex spending

## Current project pipeline and projected capex

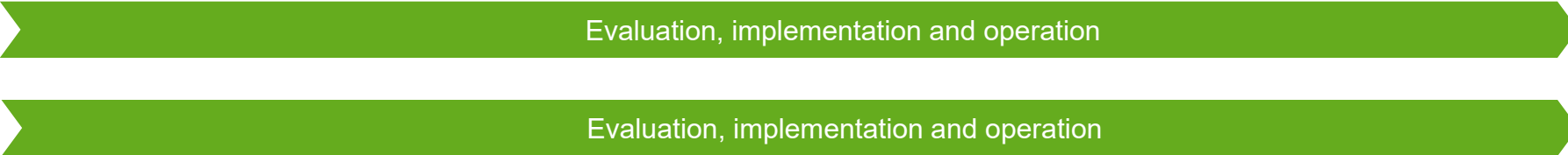
### Pilot scale

- eFurnace
- Water electrolysis
- Methane pyrolysis



### Commercial scale

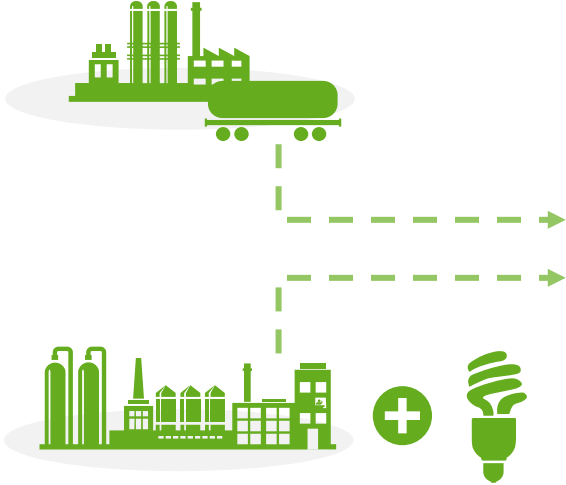
- CCS/CCU
- Power-to-heat projects (heat pumps, e-boilers and e-drives)



<sup>1</sup> 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



**Scope 1 + 2**  
Emissions caused by own operations<sup>1</sup>



- TÜV-certified<sup>2</sup>
- Meets ISO standards<sup>3</sup>
- Calculates product carbon footprints cradle-to-gate



Product carbon footprints of sales products

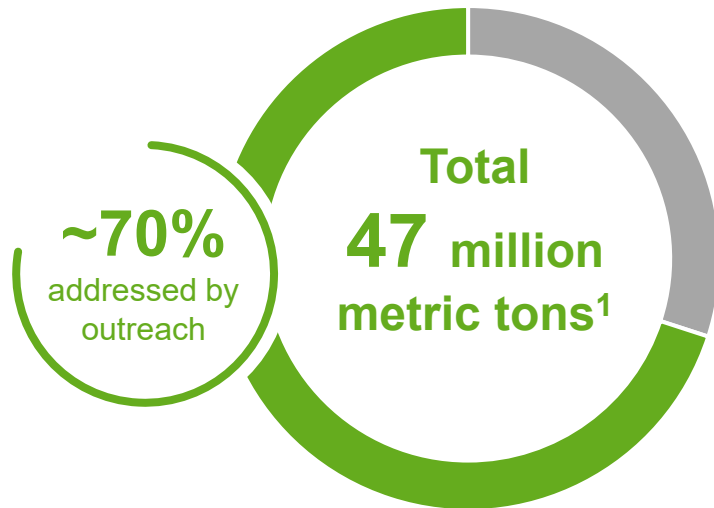
- Customer benefits
- Transparency on CO<sub>2</sub> emissions
  - Identification of main reduction levers
  - Certified software
  - Transparent documentation

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



# We have a solid foundation for primary Scope 3.1 emission data

## BASF's CO<sub>2</sub>e emissions from raw material purchase 2023



- **Supplier CO<sub>2</sub> Management Program started in 2021** to collect primary emission data for purchased raw materials
- Collaboration through **knowledge sharing on PCF calculation methodology** ongoing to ensure engagement and quality of data
- More than **1,600 suppliers** have been approached, accounting for **~70% of our raw-materials related Scope 3.1 emissions<sup>1</sup>**
- We now have more than **1,000 validated product carbon footprints** for our raw materials
- **We make product carbon footprints (PCFs) a buying criterion** to reduce our Scope 3.1 emissions and thus the PCFs of our sales products

<sup>1</sup> Greenhouse Gas Protocol Scope 3.1: Purchased goods and services: 47 million metric tons CO<sub>2</sub>e, thereof 4 million metric tons not in scope of our Scope 3.1 target from battery materials, services and technical goods; excluding greenhouse gas emissions from BASF trading business



# Our new targets: Reduce specific Scope 3.1 emissions by 15% by 2030 and achieve net-zero Scope 3.1 emissions by 2050

**2030**

**15%**

specific Scope 3.1  
CO<sub>2</sub> emission reduction  
(compared with 2022)<sup>1</sup>

**2050**

**net zero**

Scope 3.1  
CO<sub>2</sub> emissions

# By using alternative raw materials, we can reduce fossil feedstock demand and contribute to a circular economy

## Recycled feedstock

### Dedicated mechanical recycling



e.g., mechanically recycled feedstock from expanded polystyrene (EPS) waste

### Chemical recycling (e.g., ChemCycling®)



e.g., pyrolysis oil derived from plastic waste or end-of-life tires

## Renewable feedstock

### Biomass balance



e.g., biomethane or bio-naphtha derived from biomass (waste)

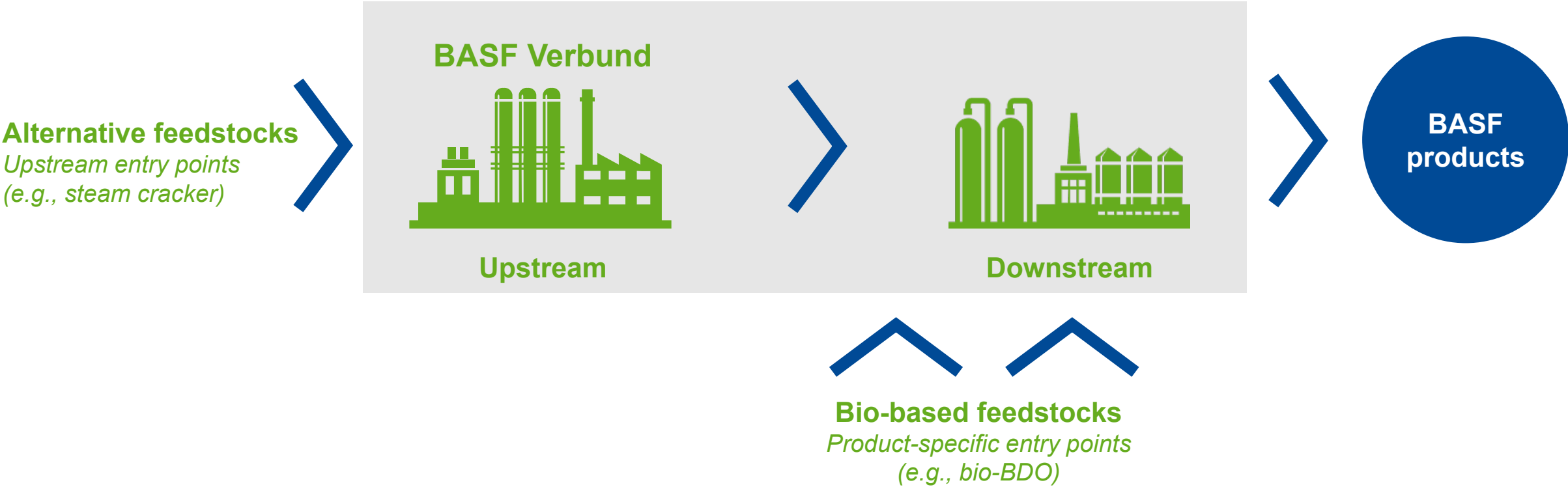
### Dedicated bio-based production



Sustainably sourced bio-based resources, e.g., RSPO certified palm oil

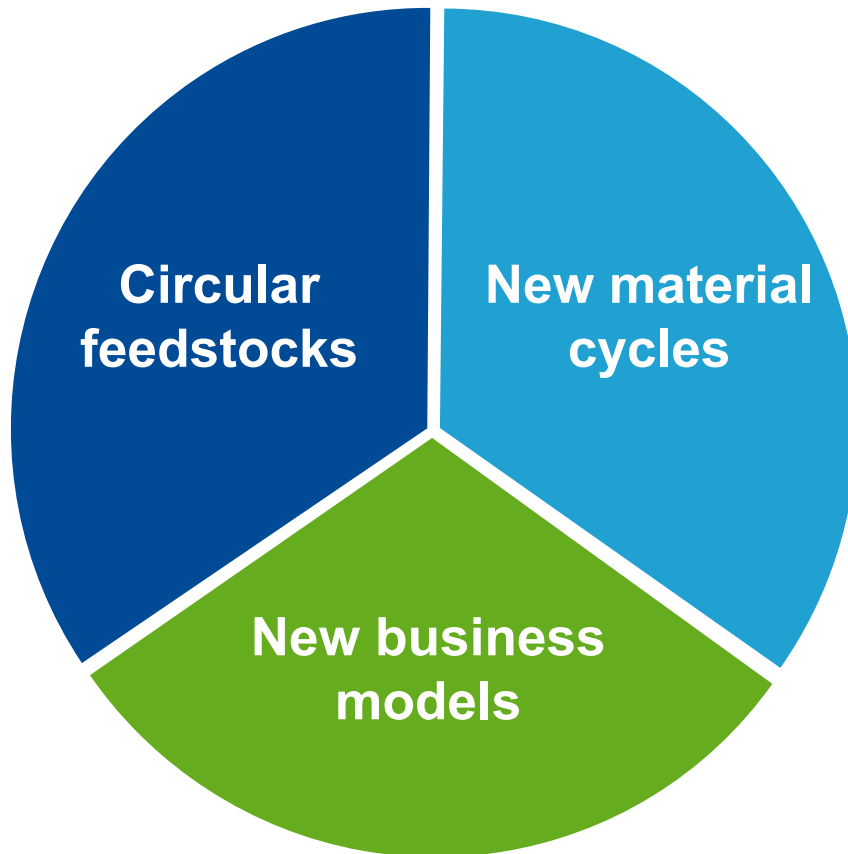
## Mass balance approach

# Entry points for alternative feedstocks in BASF value chains



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

# We focus on three areas of circularity – circular feedstocks, new material cycles and new business models



## Circular feedstocks

- We will increase the volume of renewable and recycled feedstocks from sustainable sources, also via the certified mass balance approach

## New material cycles

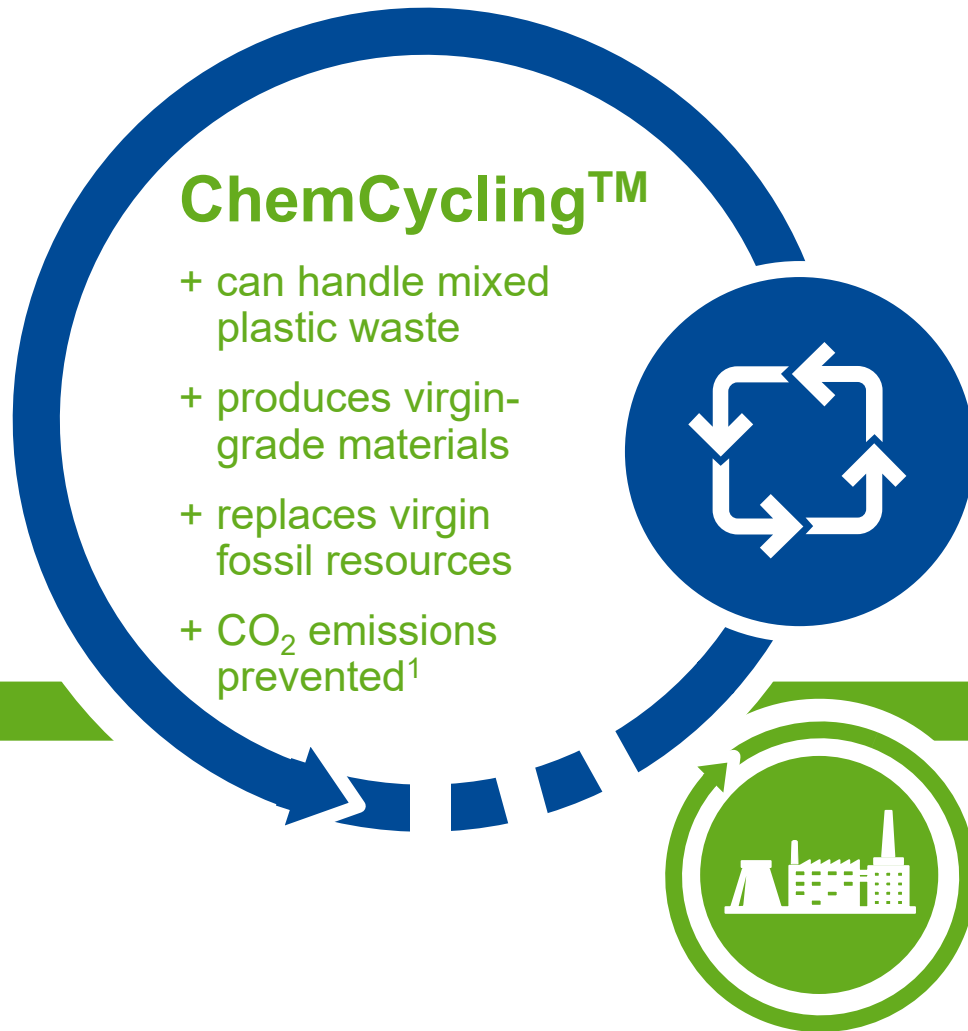
- We design materials for circularity, develop solutions which improve or enable recycling and establish product-specific recycling loops

## New business models

- We enter new markets, create smart digital solutions and offer new services which allow a decoupling of growth from resource consumption



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



## ChemCycling™

- + can handle mixed plastic waste
- + produces virgin-grade materials
- + replaces virgin fossil resources
- + CO<sub>2</sub> emissions prevented<sup>1</sup>

## 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

Linear economy

- Incineration
- Landfill
- Littering

Mechanical recycling

# Closing the loop with loopamid®



## Breakthrough

Zara's capsule jacket made from loopamid® is entirely based on textile waste and demonstrates that textile-to-textile recycling is possible.

## loopamid® is the first polyamide 6 entirely made from textile waste.

- BASF's unique recycling technology tackles one of the most pressing challenges the fashion industry is facing: textile waste.
- loopamid® realizes textile-to-textile recycling by overcoming limitations of other nylon recycling processes.
- From end-of-life textiles to virgin-like materials: Textiles are recycled at a molecular level ready to be transformed into brand new, premium fabrics.
- Collaboration with major players along the textile value chain ensures specific requirements of textile production are met.

# TripleS method increases measurability and transparency on sustainability – developed by BASF, adopted by the industry

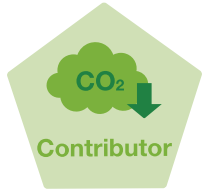


- Methodology refined after **achieving 2025 Accelerator target ahead of schedule** in 2021
- Approximately **45,000 products** are analyzed and classified worldwide
- Each product in its application is assigned to one of **five TripleS segments**
- Portfolio steered toward **climate protection, resource efficiency and circular economy** with Pioneer and Contributor products
- The World Business Council for Sustainable Development **adopted BASF's TripleS logic** for its Portfolio Sustainability Assessment (PSA)

# We categorize our product portfolio into five TripleS segments, taking upcoming regulatory changes into account



**Pioneer:** Products with adequate profitability and a positive contribution to sustainability above the market standard with regard to the topics of Biodiversity, Water Protection, Pollution reduction, Zero Hunger & Poverty, Health and Safety, Climate Change & Energy, Circularity or Resource Efficiency



**Contributor:** Products with adequate profitability and a positive contribution to sustainability on market standard with regard to the topics of Climate Change & Energy, Circularity or Resource Efficiency



**Standard:** Products performing on market standard without a dedicated contribution to the topics of Climate Change & Energy, Circularity or Resource Efficiency



**Monitored:** Products with specific identified regulatory or customer concerns arising mid-term (2-5 years) or posing a regional reputational risk for BASF



**Challenged:** Products with identified strong regulatory or customer concerns arising short-term ( $\leq 2$  years), with Substances of Very High Concern in applications with an intended consumer use, violating BASF's Code of Conduct or posing a strong global reputational risk

**KPI:**  
"Sustainable-  
Future  
Solutions"



# We aim to increase the sales share of Sustainable-Future Solutions from 41% to more than 50% by 2030

## TripleS sales in 2023<sup>1</sup>

Billion €

Not assessed

~€2.7bn

Challenged

~€1.2bn

Monitored

~€4.4bn

Standard

~€24.2bn

**~€55.5 billion**  
(~80% of  
2023 sales)<sup>1</sup>

**Pioneer**

~€13.4bn

**Contributor**

~€9.6bn

## Sustainable-Future Solutions

Resource Efficiency  
Climate Change & Energy  
Circularity  
Other<sup>2</sup>

**41%**  
2023

**>50%**  
2030

<sup>1</sup> Sales shares based on the analysis of the relevant portfolio carried out by the end of 2023; not included: platinum group metals within ECMS, strategically non-relevant businesses such as IT services, licenses, etc. The provisional segmentation has not been audited by KPMG. The allocation to the TripleS segments is provisional, as the reassessment of our portfolio has not yet been completed.

<sup>2</sup> "Other" comprises Health & Safety, Pollution Reduction, Biodiversity, Water Protection and Zero Hunger.

# Identifying and assessing sustainability topics: Materiality analysis 2023

- Eleven 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 

Product stewardship 

Waste 

Water & wastewater 

## Double materiality



**Impact materiality**  
(impact by BASF)

Impacts of our activities along the value chain<sup>1</sup>



**Financial materiality**  
(impact on BASF)

Financial impacts of ESG topics on our performance<sup>1</sup>

<sup>1</sup> Actual and potential as well as positive and negative impacts are considered.

# Protecting biodiversity is a key element of BASF's commitment to sustainability



- Key biodiversity loss drivers<sup>1</sup> for BASF are habitat transformation, climate change, overexploitation and pollution. We evaluate BASF's impacts at our sites and along the value chain.
- Various methods are used to measure our sustainability performance, e.g., Eco-efficiency analysis, Sustainable Solution Steering (TripleS) and AgBalance<sup>®</sup>
- Quantifying biodiversity is tremendously complex and requires location-specific approaches
- BASF is taking action by applying the mitigation hierarchy:
  - ▶ We avoid and reduce negative impacts on nature, e.g., by reducing GHG emissions, applying water stewardship, integrating Responsible Care<sup>®</sup>
  - ▶ We strive to restore or regenerate nature, e.g., in local projects like Mata Viva in Brazil
  - ▶ We contribute to system-wide change by transforming our business models to renewable energy, renewable raw materials and more circularity

<sup>1</sup> IPBES models of drivers of biodiversity and ecosystem change

# Taking action to protect nature and biodiversity across the value chain

## Supply chain

- Supplier Code of Conduct
- Responsible sourcing, e.g., Palm Sourcing Policy<sup>1</sup>
- Forest protection position<sup>2</sup>

## Sites and production

- Measures to increase resource efficiency and reduce emissions
- Water stewardship
- Site-specific biodiversity projects
- Remediation

## Products

- Commitment to the Responsible Care<sup>®</sup> charter
- Product innovation through TripleS
- Product stewardship

## Initiatives



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

- Forum of the Taskforce on Nature-related Financial Disclosures (TNFD)
- Roundtable on Sustainable Palm Oil (RSPO)
- Alliance to End Plastic Waste (AEPW)
- BASF Nature Advisory Council

<sup>1</sup> [basf.com/palm-sourcing-policy](https://www.basf.com/palm-sourcing-policy)

<sup>2</sup> [basf.com/forest-protection-position](https://www.basf.com/forest-protection-position)



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



- Goal: Cover 90% of our relevant spend<sup>1</sup> with sustainability evaluations by 2025 (2023: 89%), and have 80% of our suppliers improve their sustainability performance upon re-evaluation (2023: 82%)
- 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:
  - 11,421 online assessments and 492 audits carried out by an independent service provider for member companies in 2023
  - BASF itself is assessed and was ranked among the top 1% of companies in 2022



**RSPO**

Roundtable on Sustainable Palm Oil

<sup>1</sup> 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.

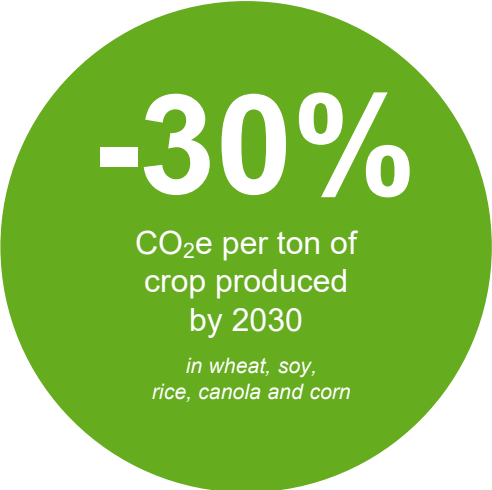
# Global water stewardship – strong commitment to local water management



- 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 2023, BASF again achieved leadership status with an A- rating in CDP's water security assessment
- Goal: Introduction of sustainable water management at our Verbund sites and at all production sites in water stress areas by 2030, covering ~90% 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: 70%

# Our sustainability commitments as a leader in agriculture

## Climate Smart Farming



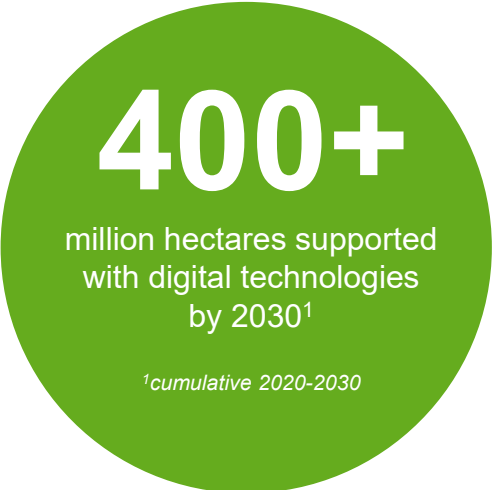
Supporting farmers to become more **carbon efficient** and **resilient** to volatile weather conditions

## 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

# Respect for human rights at BASF – longstanding self-commitment led to solid structures, proven processes and experience

## Overall setup



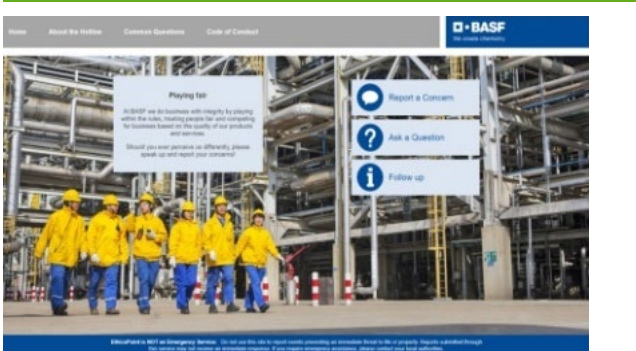
## Important building blocks



## Backbone



## Grievance mechanism





# 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
- Global survey “Employee Voices” in 2023: 79% of all participants agreed with the statement that at BASF they can thrive and perform at their best

# Corporate Governance – two-tier management system of BASF SE

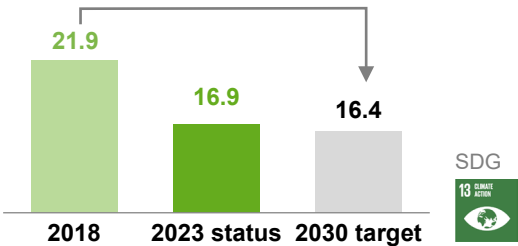


- Transparent and effective separation of company management and supervision
- Reasonable level of diversity, e.g., with respect to gender:
  - Board of Executive Directors: 17% female members
  - Supervisory Board: 33% female members

# BASF Group: Overview of non-financial targets (I/II)

## Effective climate protection

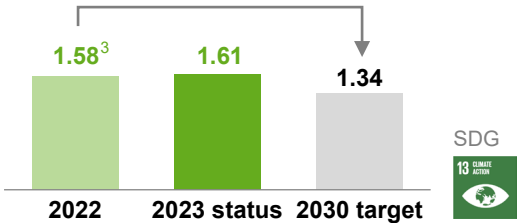
Million metric tons



Most important key performance indicator

Reduce our absolute **CO<sub>2</sub> emissions (Scope 1 and 2)** by 25% by 2030 (baseline 2018)<sup>1</sup>

## Kg CO<sub>2</sub>/kg raw materials

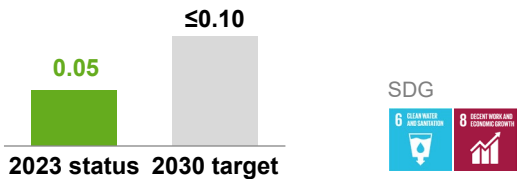


Reduce our specific **CO<sub>2</sub> emissions (Scope 3.1)** by 15% by 2030 (baseline 2022)<sup>2</sup>

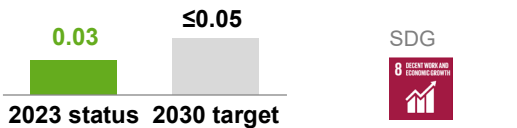
<sup>1</sup> Scope 1 and Scope 2 (excluding the sale of energy to third parties). The target includes greenhouse gases according to the Greenhouse Gas Protocol, which are converted into CO<sub>2</sub> equivalents (CO<sub>2</sub>e). The baseline year is 2018.  
<sup>2</sup> Scope 3.1, raw materials excluding battery materials, services and technical goods, excluding greenhouse gas emissions from BASF trading business. Future adjustment of the baseline in line with the TFS guideline possible depending on the availability of further primary data. The baseline year is 2022.  
<sup>3</sup> The figure for 2022 was adjusted due to increased data availability.  
<sup>4</sup> We updated the safety targets in 2023.

↘ Reduction target

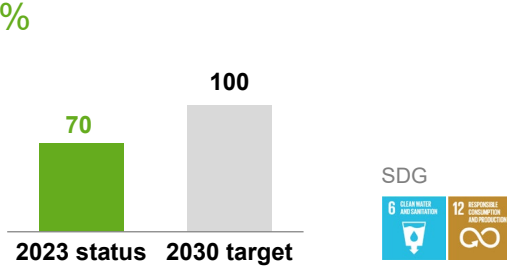
## Resource efficiency and safe production



Limited assurance  
 Reduce our worldwide **high-severity process safety incidents** per 200,000 working hours to ≤0.10 by 2030<sup>4</sup>



Limited assurance  
 Reduce our worldwide **high-severity work process-related injuries** per 200,000 working hours to ≤0.05 by 2030<sup>4</sup>



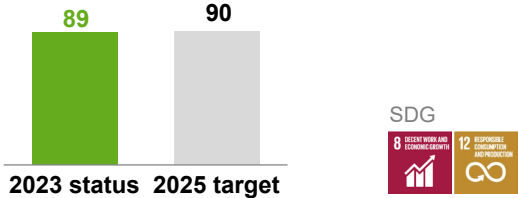
Limited assurance  
 Introduce **sustainable water management** at our production sites in water stress areas and at our Verbund sites by 2030



# BASF Group: Overview of non-financial targets (II/II)

## Responsible procurement

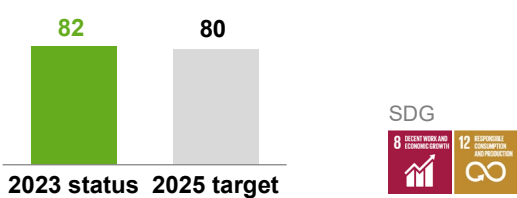
%



Limited assurance

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

%

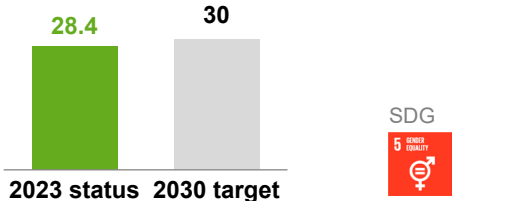


Limited assurance

Have 80% of our suppliers improve their **sustainability performance** upon reevaluation

## Committed employees and diversity

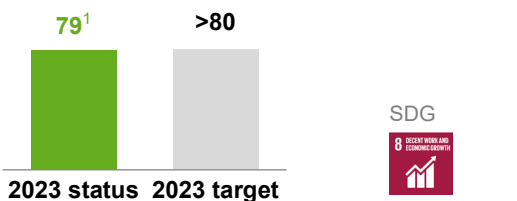
%



Limited assurance

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

%



Limited assurance

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

<sup>1</sup> We regularly calculate the employee engagement level. The most recent survey was conducted in 2023.

# BASF in sustainability ratings and rankings

## MSCI ESG Research

In 2023, BASF was rated A. The analysts highlighted that BASF is present in clean tech markets and has a robust carbon mitigation and water reduction strategy.



## CDP Disclosure Leadership

In February 2024, CDP once again awarded BASF Leadership status (A-) in the categories of climate protection, water management and forest protection.



## 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 CO<sub>2</sub>, emissions, wastewater and waste as well as occupational health and safety.



## FTSE4Good Global Index

BASF was again included in the FTSE4Good Global Index in 2023.



FTSE4Good

## ISS ESG

In 2023, BASF held its Prime Status (B-), being among the top decile rank of the companies assessed.







We create chemistry