



# Capital Market Story

Dr. Markus Kamieth  
Member of the Board of Executive Directors  
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# 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 151 to 160 of the BASF Report 2021. BASF does not assume any obligation to update the forward-looking statements contained in this presentation above and beyond the legal requirements.*

# Agenda

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At a glance

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Reporting  
Q3 2022

3

Pushing the  
transition to a  
sustainable  
economy

4

Unique  
position to  
capture growth  
in Asia

5

Battery  
materials  
driving electro-  
mobility and  
future growth

# What is driving BASF's future growth?

## Global trends provide opportunities for growth in the chemical industry

### Population growth:

Driven by the  
emerging markets

**+24%**  
2021 to 2050

### Digitalization:

Rapid growth in  
volume of data

**660**  
zettabytes in 2030

### China the largest market:

Share of global  
chemical market

**~50%**  
by 2030

### Climate change:

Required reduction of greenhouse gas  
emissions to achieve the 2°C goal

**-70%**  
by 2050 (baseline 1990)

### Circular economy:

Non-recycled plastics  
worldwide

**~200**  
million metric tons per year

### Electromobility:

Growing demand for  
battery materials

**~21%**  
per year  
2021 to 2030

# Unique position to deliver long-term value

Unique Verbund concept	Industry-leading innovation platform	Strong and expanding local presence in fast growing Asian market	Creating value to society and contributing to a sustainable development	Progressive dividend policy
<ul style="list-style-type: none"> <li>▪ <b>6</b> Verbund sites globally</li> <li>▪ <b>232</b> additional production sites worldwide</li> <li>▪ <b>7.3 million metric tons</b> of CO<sub>2</sub> avoided globally in 2021</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>€2.2 billion</b> R&amp;D expenses in 2021</li> <li>▪ <b>~10,000</b> employees in R&amp;D</li> <li>▪ Sales of <b>~€11 billion</b> in 2021 with products launched during last 5 years</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>2</b> Verbund sites already</li> <li>▪ <b>~70</b> production sites</li> <li>▪ <b>€21.2 billion<sup>1</sup></b> sales in 2021</li> <li>▪ <b>Strong volume and earnings development</b> of BASF in Greater China</li> </ul>	<ul style="list-style-type: none"> <li>▪ Target: <b>25% CO<sub>2</sub> emission<sup>2</sup> reduction</b> by 2030 (compared with 2018)</li> <li>▪ We aim to achieve <b>net zero CO<sub>2</sub> emissions<sup>2</sup></b> by 2050</li> <li>▪ Achieve <b>€22 billion</b> in Accelerator sales by 2025 (already reached in 2021: <b>€24.1 billion<sup>3</sup></b>)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Aim to <b>increase the dividend per share</b> every year</li> <li>▪ Dividend of <b>€3.40</b> per share for 2021</li> </ul>

<sup>1</sup> Sales in Asia Pacific by location of customer. Only includes sales from BASF entities fully consolidated according to IFRS 10/11

<sup>2</sup> Includes Scope 1 and Scope 2 emissions. In March 2021, we replaced our previous target of CO<sub>2</sub>-neutral growth until 2030 (baseline 2018: 21.9 million metric tons of CO<sub>2</sub>e) with a new, more ambitious climate protection target to reduce absolute CO<sub>2</sub> emissions by 25% compared with 2018 (new target: 16.4 million metric tons of CO<sub>2</sub>e).

<sup>3</sup> We already reached our 2025 sales target for Accelerator products in 2021. Consequently, we will update our product portfolio steering target over the course of 2022.



# The BASF Group's segments in 2021



## Chemicals<sup>1</sup>

The Chemicals segment consists of the Petrochemicals and Intermediates divisions. The segment supplies BASF's other segments and third-party customers with basic chemicals and intermediates.

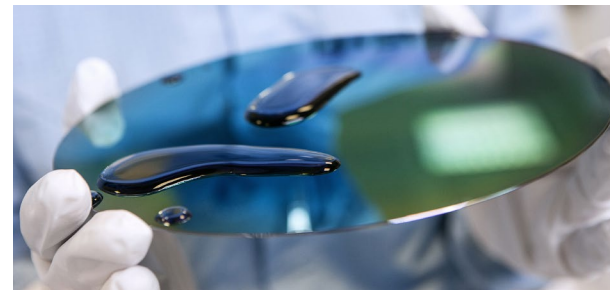
- Sales 2021: €13,579 million
- EBIT before specials items 2021: €3,092 million



## Materials

The Materials segment is composed of the Performance Materials and Monomers divisions. The segment offers advanced materials and their precursors for the plastics and plastics processing industries.

- Sales 2021: €15,214 million
- EBIT before specials items 2021: €2,418 million



## Industrial Solutions

The Industrial Solutions segment consists of the Dispersions & Resins and the Performance Chemicals divisions. The segment develops and markets ingredients and additives for industrial applications.

- Sales 2021: €8,876 million
- EBIT before specials items 2021: €1,006 million



## Surface Technologies

The Surface Technologies segment comprises the Catalysts and Coatings divisions. The segment offers chemical solutions for surfaces such as battery materials and automotive coatings.

- Sales 2021: €22,659 million
- EBIT before specials items 2021: €800 million



## Nutrition & Care

The Nutrition & Care segment comprises the Care Chemicals division and the Nutrition & Health division. The segment produces ingredients and solutions for consumer applications such as nutrition and personal care.

- Sales 2021: €6,442 million
- EBIT before specials items 2021: €497 million



## Agricultural Solutions

The Agricultural Solutions segment is an integrated provider of seeds, crop protection and digital technologies and solutions.

- Sales 2021: €8,162 million
- EBIT before specials items 2021: €715 million

<sup>1</sup> BASF's ethylene value chain was reorganized as of January 1, 2022. In this connection, the polyolefins and styrenics businesses of the JV BASF-YPC Company Ltd., Nanjing, China, which were previously reported under Other, were allocated to the Petrochemicals division. The prior-year figures have been adjusted. Other not depicted on the slide: Sales 2021: €3,666 million, EBIT before special items 2021: -€761 million

# Strategic alignment of BASF's segments

	Chemicals	Materials	Industrial Solutions	Surface Technologies	Nutrition & Care	Agricultural Solutions
Verbund synergies	Catalysis					
	Process technology					
		Automotive industry				
	Recycling and renewable raw materials					
					Biosciences	
		Formulation				
	Digitalization and artificial intelligence					
Strategic focus	Economies of scale in basic chemicals and intermediates	High-performance plastics	Additives platform	Surface technology platform	Ingredients for consumer products	Connected offer across technologies for farmers
Innovation and sustainability focus	Improved and new processes	Applications, recycled and bio-based materials	Polymer dispersions, resins	Battery materials, coatings	Biotechnology, natural active ingredients, formulations	Active ingredients, seeds and traits, digital solutions

# Our unique Verbund concept is one of BASF's greatest assets with multiple benefits strengthening the portfolio

## Production

- 7.3 million metric tons of CO<sub>2</sub> emissions avoided globally in 2021
- Integration enables drop-in solutions for bio-based and recycled feedstock for low-carbon products



## Technologies

- Leverage technological advantages and innovation across all segments
- Unique expertise in developing and integrating new, low-emission technologies

## Value Chains

- Ensure competitive supply of key raw materials and products to all segments while avoiding CO<sub>2</sub> emissions

## Markets

- Create customer relevance through size and broad portfolio

## Digitalization

- Harvest the advantages offered by digitalization across BASF, for example, by calculating product carbon footprints



# We operate close to our customers in all regions worldwide

North America	
Sales (million €)	20,867
Employees	16,753

Europe	
Sales (million €)	30,531
Employees	67,532

Asia Pacific	
Sales (million €)	21,234
Employees	19,976

South America, Africa, Middle East	
Sales (million €)	5,965
Employees	6,786

## BASF sales by industry 2021

Direct customers	> 20% <sup>1</sup>	Chemicals and plastics   Transportation
	10–20% <sup>1</sup>	Agriculture   Consumer goods
	< 10% <sup>1</sup>	Construction   Electronics   Energy and resources   Health and nutrition

<sup>1</sup> In each case

- Regional centers
- Selected sites
- Verbund sites
- Planned Verbund site
- Selected research and development sites

# Use of cash – clear focus on long-term shareholder value

## Organic growth

- €25.6 billion capex budget 2022–2026
- Around €2.2 billion in R&D expenses per year

## Progressive dividend

- Aim to increase dividend per share every year
- Solid balance sheet and strong free cash flow support dividend policy

## Portfolio upgrades

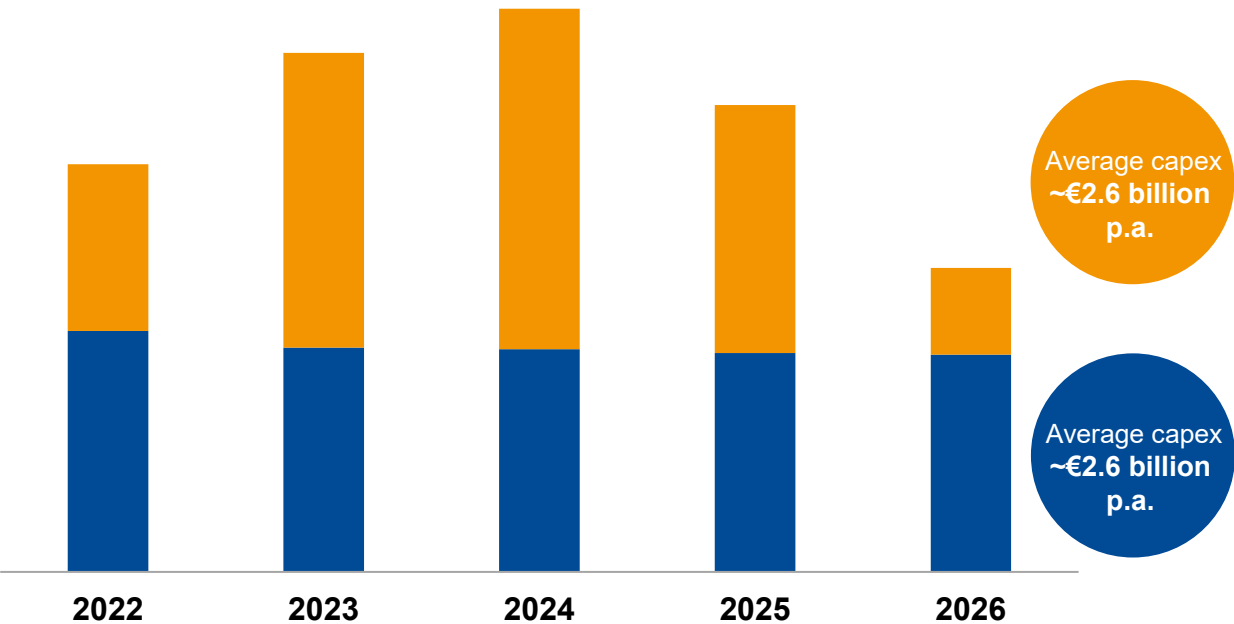
- Strengthen portfolio through selective M&A opportunities while maintaining price discipline
- Focus the portfolio with continued pruning measures

## Share buybacks

- Share buyback program 2022–2023 with a volume of up to €3 billion
- Repurchased shares to be canceled, reducing the share capital accordingly

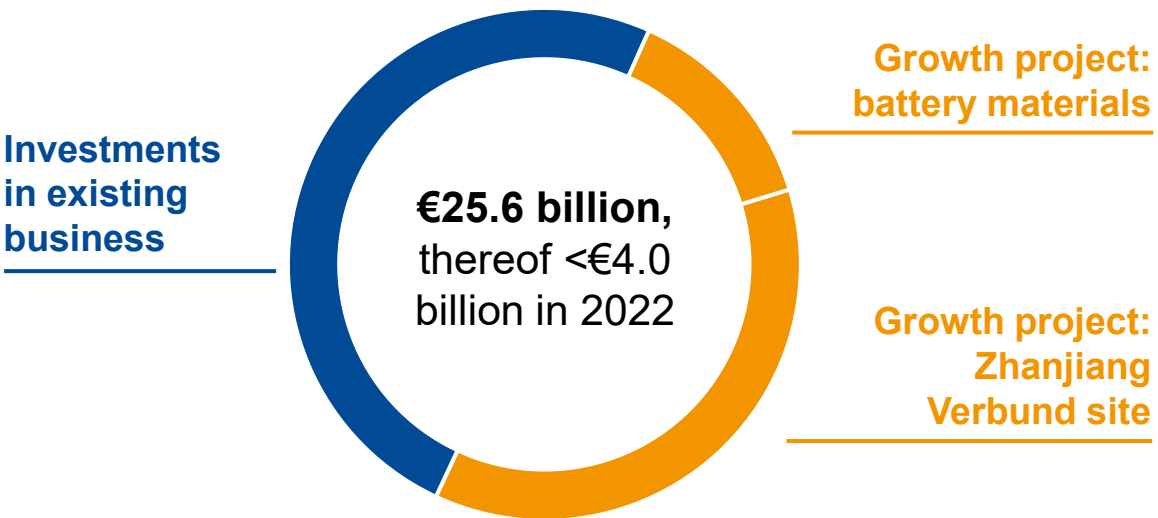
# BASF Group: High capex discipline in existing business to support investments in growth projects

Capex budget by type of investment  
Billion €, 2022–2026



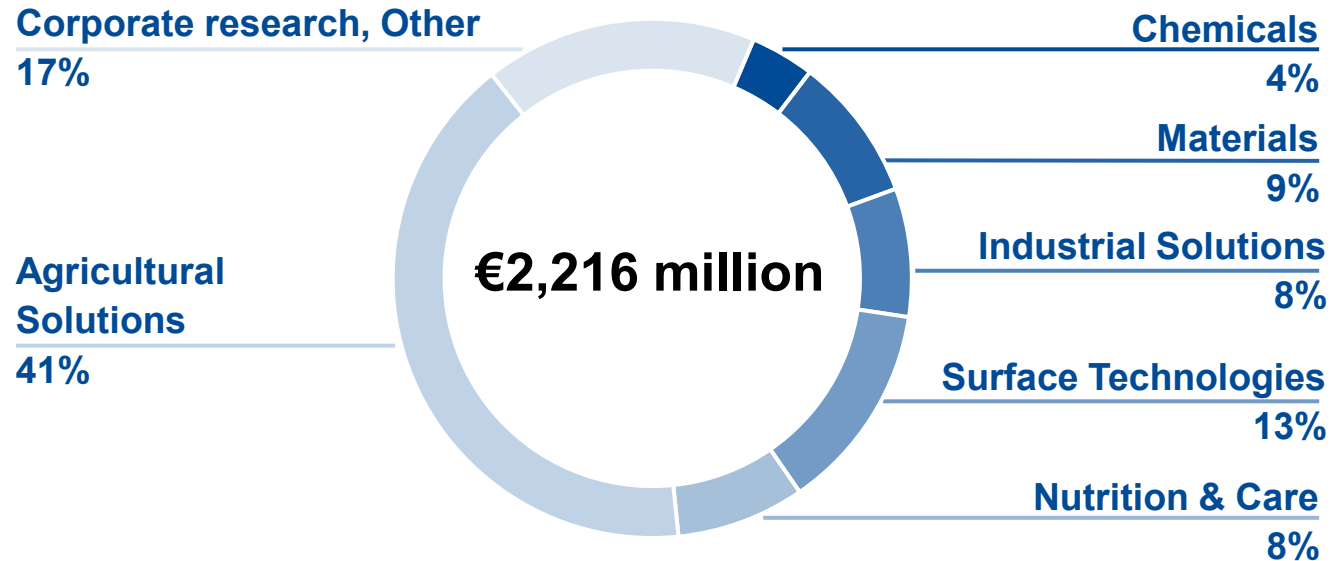
■ Growth projects: Zhanjiang Verbund site and battery materials  
■ Investments in existing business

Capex budget by type of investment  
Billion €, 2022–2026



# BASF's industry-leading innovation platform ensures long-term organic growth

## R&D expenses 2021



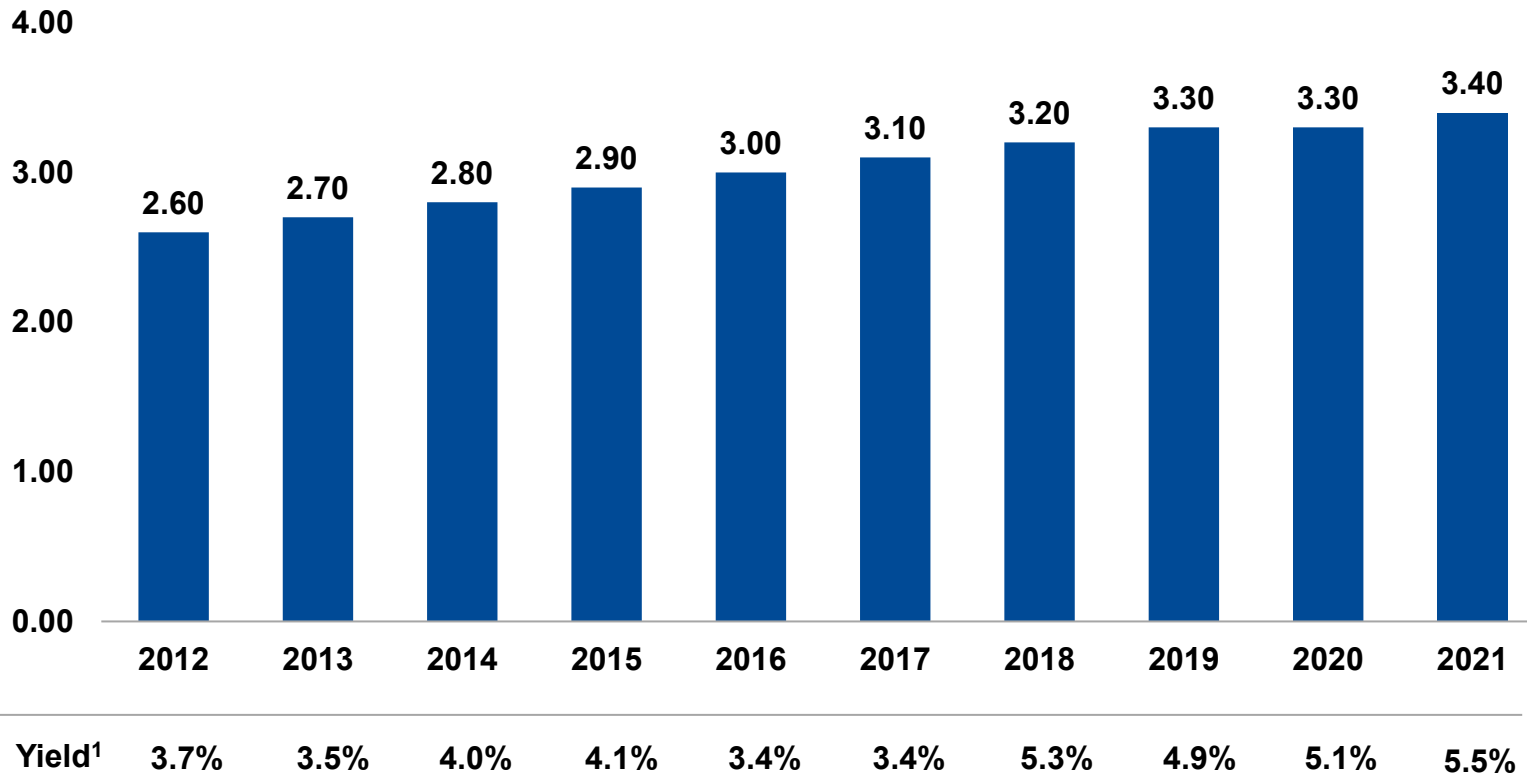
## Key facts 2021

- R&D expenses to sales ratio 2.8%
- Commitment to R&D with annual spending of ~€2.2 billion
- ~10,000 employees in R&D
- ~820 new patents filed in 2021
- Research Verbund: 8 Academic Research Alliances are complemented by cooperations with ~280 universities and research institutes
- ~€11 billion sales generated from R&D activities with products launched during last 5 years
- Accelerator sales of €24.1 billion<sup>1</sup> in 2021
- Peak sales potential of BASF's Agricultural Solutions innovation pipeline of >€7.5 billion between 2021 and 2031

# Attractive shareholder return

## – clear commitment to progressive dividend policy

Dividend per share  
€



### Key facts 2021

- Dividend of €3.40 per share, an increase of 10 euro cents
- In total, we paid out €3.1 billion, which was fully covered by our free cash flow of €3.7 billion
- Dividend yield of 5.5% based on the share price of €61.78 at year end 2021



# We have consistently refocused our portfolio toward innovative growth businesses<sup>1</sup>

## Acquisitions

- Functional crop care
- Personal care and food ingredients
- Omega-3 fatty acids
- Enzymes
- Battery materials
- Specialty plastics
- Refinish coatings
- Surface treatment
- Seeds and crop protection
- Polyamide business

**~€9.5 billion sales in emerging and innovation-driven businesses**



## Divestitures

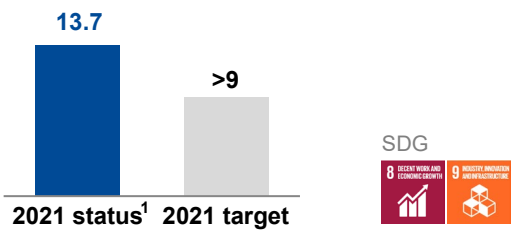
- Styrenics
- Fertilizers
- Natural gas trading and storage
- Custom synthesis business
- Textile chemicals
- Polyolefin catalysts
- Industrial coatings
- Leather chemicals
- Water and paper chemicals
- Oil & gas
- Construction chemicals
- Pigments business

**~€29.9 billion sales in businesses with decreased differentiation potential**

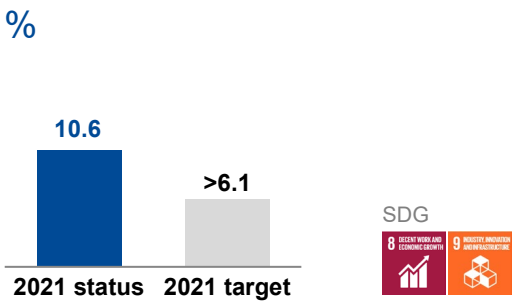
# BASF Group: Targets and target achievement 2021 (I/II)

## Profitable growth

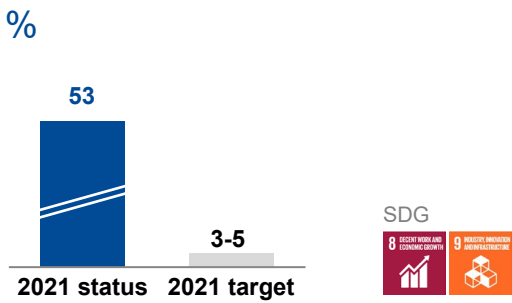
%



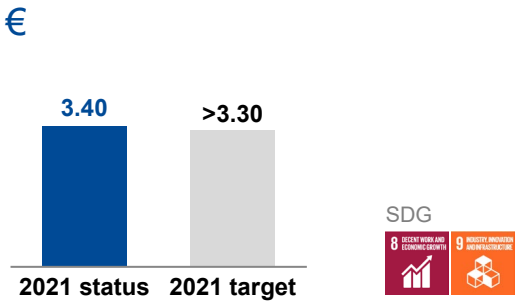
Achieve a **return on capital employed (ROCE)** considerably **above the cost of capital percentage** every year



Grow **sales volumes** faster than **global chemical production** every year



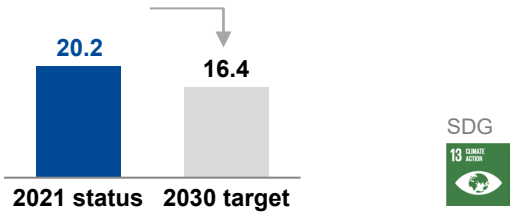
Increase **EBITDA before special items** by **3% to 5%** per year



Increase the **dividend per share** every year based on a **strong free cash flow**

## Effective climate protection

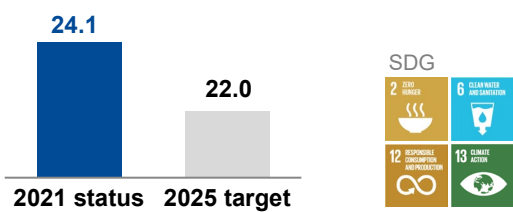
Million metric tons



Reduce our **absolute CO<sub>2</sub> emissions**<sup>2</sup> by 25% by 2030 (development of carbon emissions compared with baseline 2018)

## Sustainable product portfolio

Billion €



Achieve **€22 billion** in **Accelerator sales** by 2025<sup>3</sup>

<sup>1</sup> BASF's ethylene value chain was reorganized as of January 1, 2022. In this connection, the polyolefins and styrenics businesses of the joint venture BASF-YPC Company Ltd., Nanjing, China, which were previously reported under Other, were allocated to the Petrochemicals division. The prior-year figures have been adjusted. The operating assets were also reallocated as part of the reorganization and increased the Chemicals segment's assets by €114 million as of December 31, 2021. Overall, the adjustments improved the BASF Group's ROCE for 2021 by 0.2 percentage points to 13.7%.

<sup>2</sup> Includes Scope 1 and Scope 2 emissions. In March 2021, we replaced our previous target of CO<sub>2</sub>-neutral growth until 2030 (baseline 2018: 21.9 million metric tons of CO<sub>2</sub>e) with a new, more ambitious climate protection target to reduce absolute CO<sub>2</sub> emissions by 25% compared with 2018 (new target: 16.4 million metric tons of CO<sub>2</sub>e).

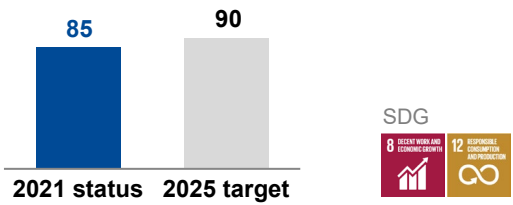
<sup>3</sup> We already reached our 2025 sales target for Accelerator products in 2021. Consequently, we will update our product portfolio steering target over the course of 2022.

↘ Reduction target

# BASF Group: Targets and target achievement 2021 (II/II)

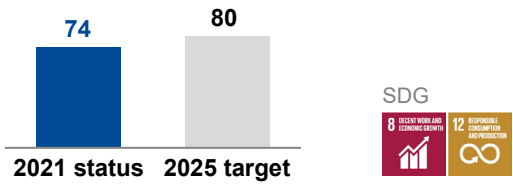
## Responsible procurement

%



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

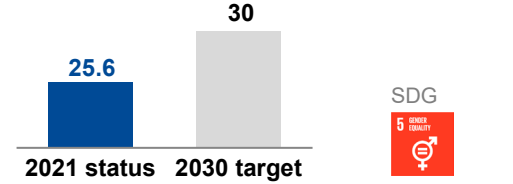
%



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

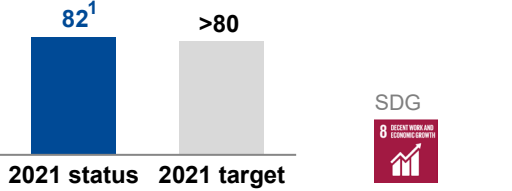
## Employee engagement and diversity

%



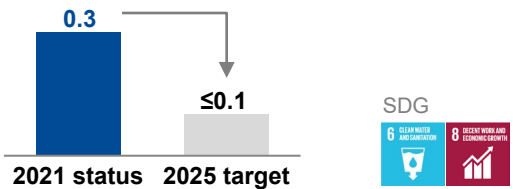
Increase the proportion of **women in leadership positions** with disciplinary responsibility to **30%** by 2030

%

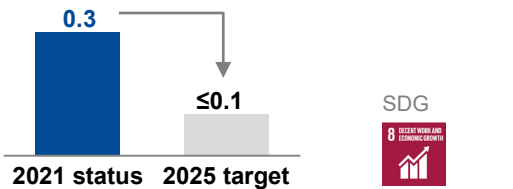


More than **80%** of our **employees** feel that at BASF, they can **thrive** and **perform at their best**

## Resource efficiency and safe production

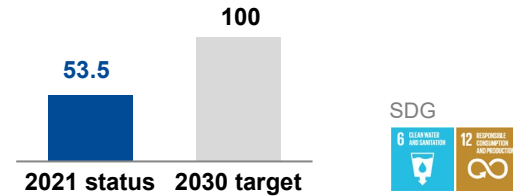


Reduce worldwide **process safety incidents** per 200,000 working hours to **≤ 0.1** by 2025



Reduce the worldwide **lost-time injury rate** per 200,000 working hours to **≤ 0.1** by 2025

%



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

<sup>1</sup> We regularly calculate the employee engagement level. The most recent survey was conducted in 2020. The next survey is planned for spring 2022.

↘ Reduction target

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# Moderate demand growth in key customer industries in Q3 2022

## Chemicals and plastics

- **Global production hardly growing**; decline in Europe due to high energy costs; growth in the U.S. and China



## Transportation

- **Global production strongly above last year**; recovery in China; base effects in North America and the E.U.



## Agriculture

- **Solid demand environment**; yields impacted by dry weather in several regions



## Consumer goods

- **Solid demand for consumables** (care)
- **Negative impact** of high inflation **on durable consumer goods**



## Health and nutrition

- **Food production dampened by high energy costs** and weaker global demand; **pharma stable**



## Electronics

- **Softening demand in consumer electronics**; **industrial demand solid**; supply chain pressure easing



## Energy and resources

- **Oil production above prior year**; **natural gas production declining**
- Moderate growth in mining, excluding oil and gas



## Construction

- **Negative impact of increasing interest rates** in North America and Europe
- In China, ongoing weakness of residential construction

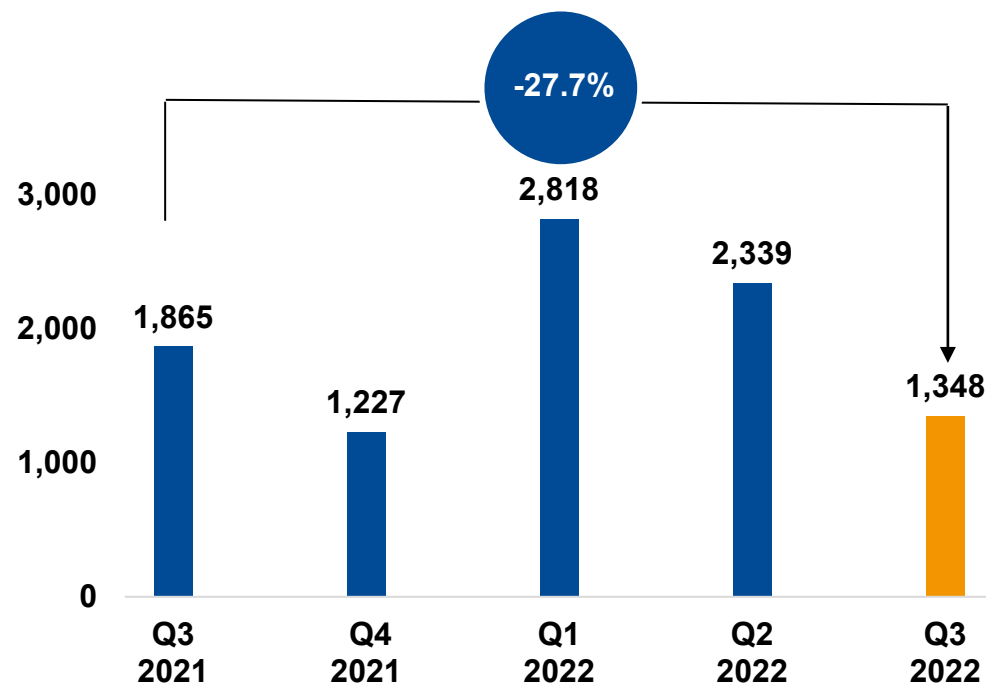




# Q3 2022: BASF achieved solid EBIT before special items despite continued high raw materials and energy prices

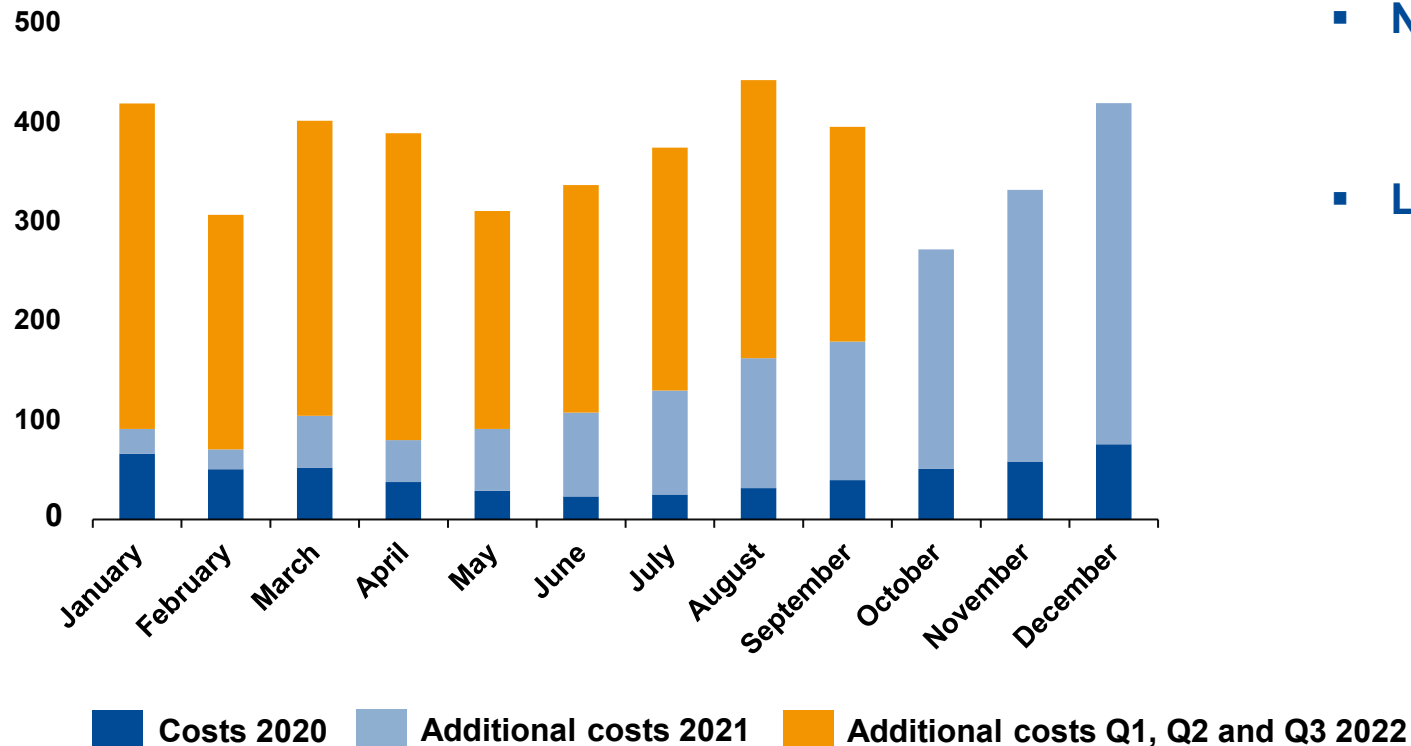
- In Q3 2022, EBIT before special items declined by €0.5 billion and amounted to €1.3 billion; additional costs for natural gas in Europe are one major reason for this decline
- BASF's downstream segments considerably improved earnings, mainly due to higher prices
- As forecasted, earnings of upstream segments declined considerably from very high levels

EBIT before special items  
Million €



# Natural gas prices in Europe increased further compared with already elevated levels in Q3 2021

Incremental natural gas spend in Europe  
Million €



- **Natural gas price burden for European BASF sites**
  - Additional costs of ~€2.2 billion in first nine months of 2022 compared with the same period of 2021
- **Ludwigshafen site**
  - Largest gas consumer in BASF (2021: ~37 TWh)
  - Half of the natural gas is used for producing electricity and steam, the other half as raw material
  - Technical optimization projects initiated
  - Partial substitution of natural gas by fuel oil in the power plants

# BASF takes decisive action with focus on Europe and Germany in particular

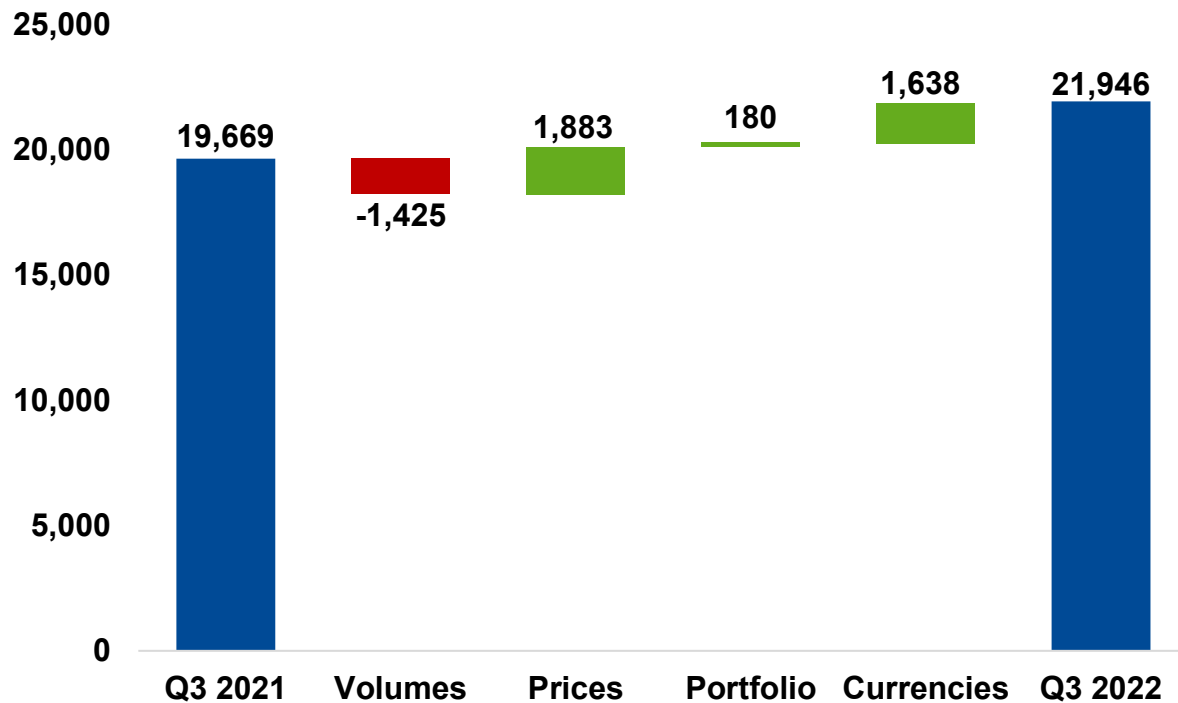
The significantly weaker earnings in Europe, especially in Germany, as well as the deteriorating framework conditions in the region make **permanent cost reduction and structural adjustments necessary**.

- **Cost savings program** in non-production areas focusing on Europe and Germany in particular
  - Implementation starts immediately and should be completed by the end of 2024
  - Employee representatives are involved in the relevant bodies
  - When completed, the program is expected to generate annual cost savings of €500 million
  - Streamlining of operating, service and research & development divisions as well as the corporate center
  
- Further **structural measures to adjust BASF's production Verbund in Europe in the medium and long term** are necessary
  - Detailed analysis of value chains ongoing
  - Measures will be communicated in the first quarter of 2023

# Q3 2022: Sales increase mainly driven by higher prices and positive currency effects

## Sales bridge Q3 2022 vs. Q3 2021

Million €

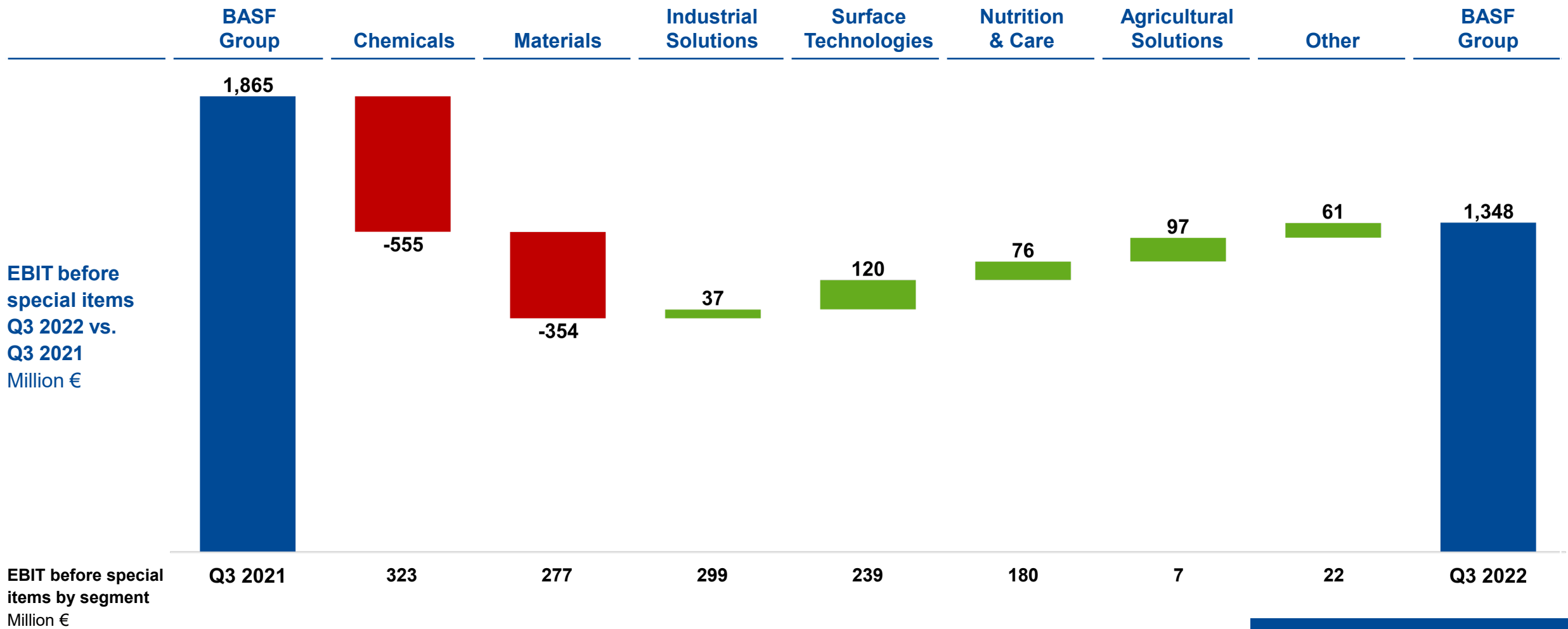


- **Sales** increased by 11.6% to €21,946 million
- **Volumes** declined by 7.2%
  - Agricultural Solutions increased volumes, all other segments recorded lower volumes
- **Prices** increased by 9.6%
  - All divisions increased prices, except for Catalysts due to lower precious metal prices
- **Portfolio** effects of plus 0.9% were related to BASF Shanshan Battery Materials
- **Currency** effects of 8.3% were mainly from the U.S. dollar

## Sales development

Q3 2022 vs. Q3 2021	Volumes	Prices	Portfolio	Currencies
	↓ -7.2%	↑ 9.6%	↑ 0.9%	↑ 8.3%

# Q3 2022: BASF's downstream segments considerably improved earnings, while earnings in upstream segments declined considerably





# BASF Group Q3 2022 and Q1–Q3 2022: Financial figures

Financial figures	Q3 2022	Change	Q1–Q3 2022	Change
	Million €	%	Million €	%
Sales	21,946	11.6	68,003	15.6
EBITDA before special items	2,325	-16.1	9,361	2.1
EBITDA	2,255	-17.4	9,359	2.8
EBIT before special items	1,348	-27.7	6,505	-0.6
EBIT	1,294	-29.0	6,429	-0.3
Net income from shareholdings	102	18.1	-262	.
Net income	909	-27.5	4,220	-8.8

# Cash flow development in Q3 2022 and Q1–Q3 2022

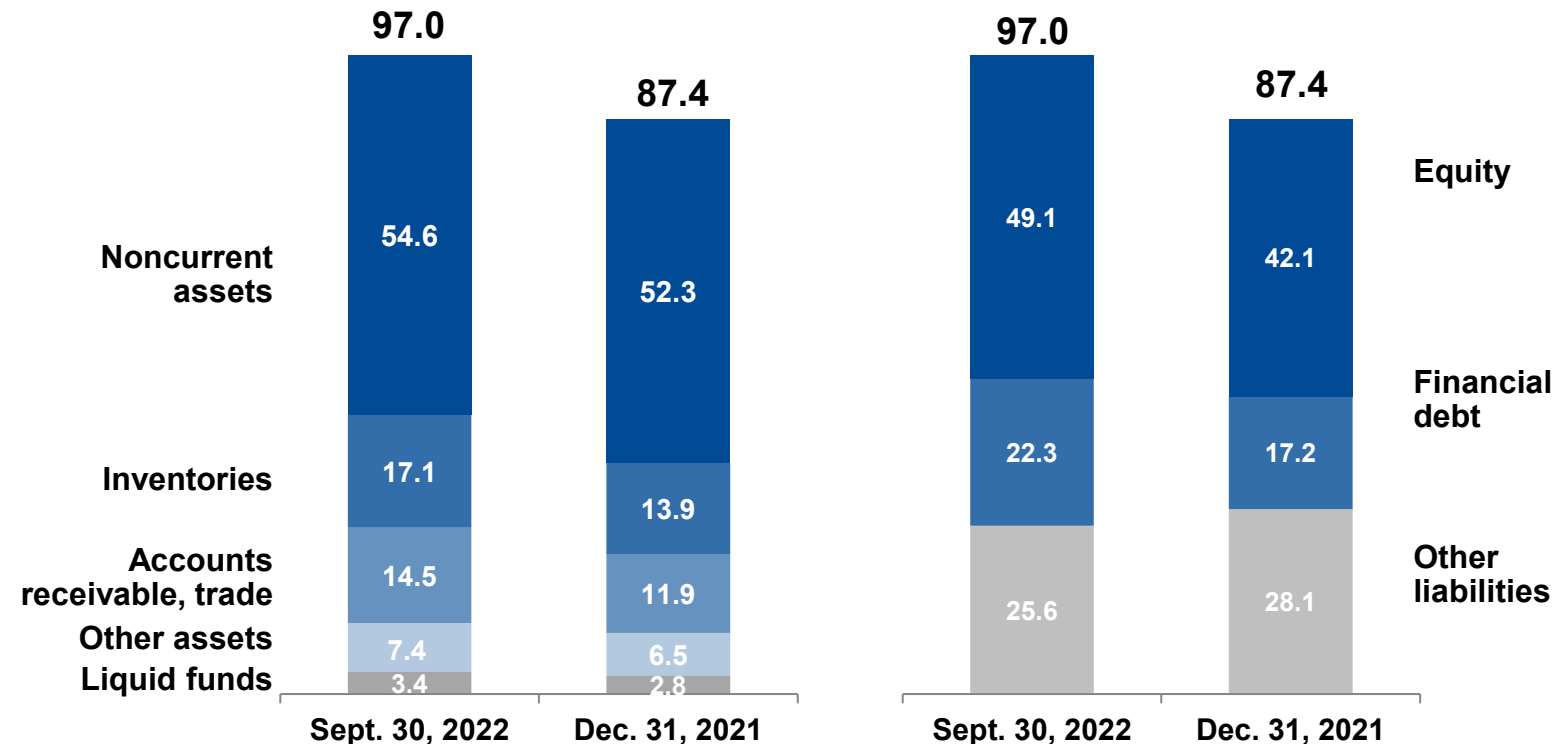
	Q3 2022	Q3 2021	Q1–Q3 2022	Q1–Q3 2021
	Million €	Million €	Million €	Million €
<b>Cash flows from operating activities</b>	<b>2,301</b>	<b>1,896</b>	<b>3,239</b>	<b>3,908</b>
of which Changes in net working capital <sup>1</sup>	670	-44	-4,172	-2,808
Miscellaneous items	-238	-220	261	-564
<b>Cash flows from investing activities</b>	<b>-680</b>	<b>-1,818</b>	<b>-1,899</b>	<b>-1,930</b>
of which Payments made for property, plant and equipment and intangible assets	-1,006	-819	-2,501	-2,042
Acquisitions / divestitures	222	-627	601	491
<b>Cash flows from financing activities</b>	<b>-2,188</b>	<b>-56</b>	<b>-889</b>	<b>-3,490</b>
of which Changes in financial and similar liabilities	-1,938	53	3,627	-229
Dividends	-16	-109	-3,208	-3,261
<b>Free cash flow</b>	<b>1,295</b>	<b>1,077</b>	<b>738</b>	<b>1,866</b>

<sup>1</sup> In order to optimize precious metal stocks, the Group sells precious metals and concurrently enters into agreements to repurchase them at a set price. The cash flows resulting from the sale and repurchase are reported in cash flows from operating activities. Liabilities to repurchase precious metals amounted to €734 million as of September 30, 2022.

# Strong balance sheet

## Balance sheet September 30, 2022, vs. December 31, 2021

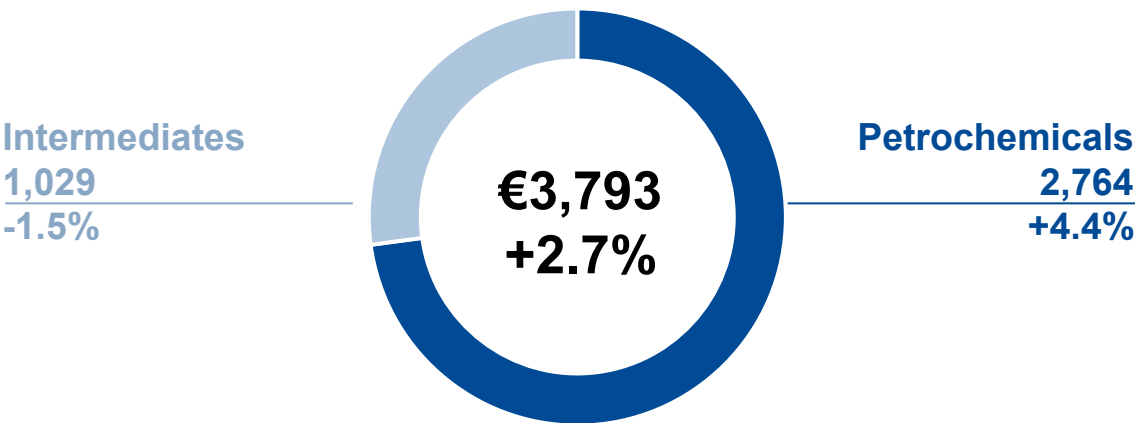
Billion €



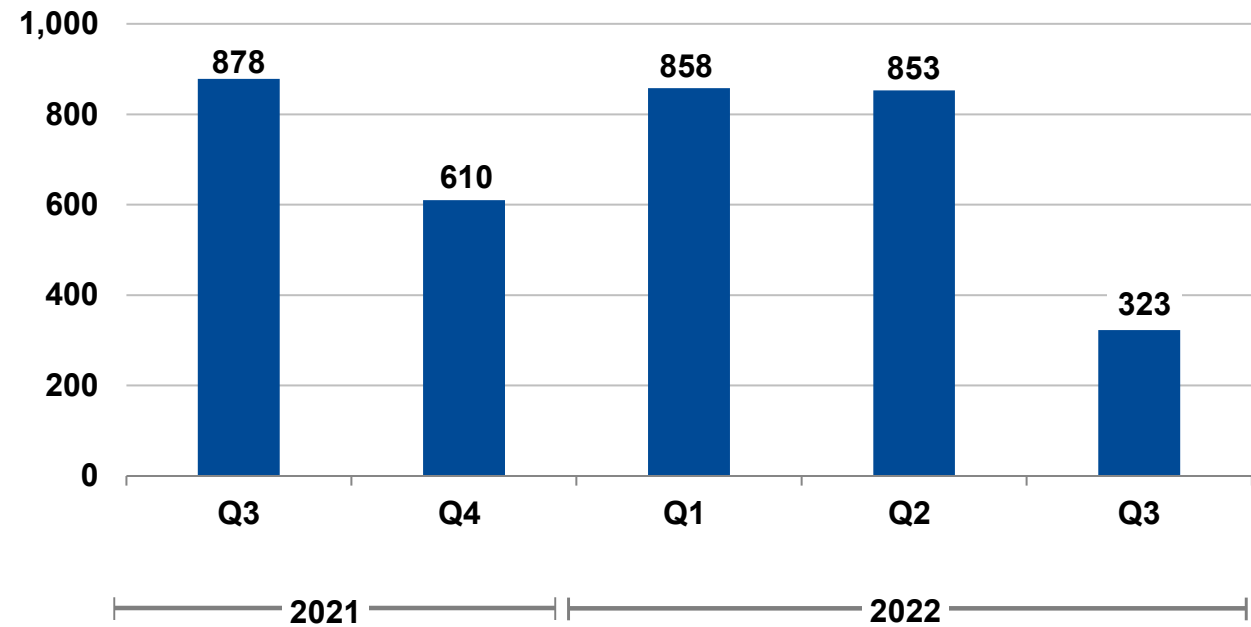
- **Total assets** increased by €9.6 billion to €97.0 billion
- **Noncurrent assets** amounted to €54.6 billion, an increase of €2.3 billion
- **Current assets** increased by €7.4 billion to €42.4 billion, mainly due to higher inventories and increased trade accounts receivable
- **Net debt** increased by €4.6 billion to €18.9 billion
- **Equity ratio:** 50.6% (December 31, 2021: 48.2%)

# Chemicals

Sales Q3 2022 vs. Q3 2021  
million €



EBIT before special items<sup>1</sup>  
million €

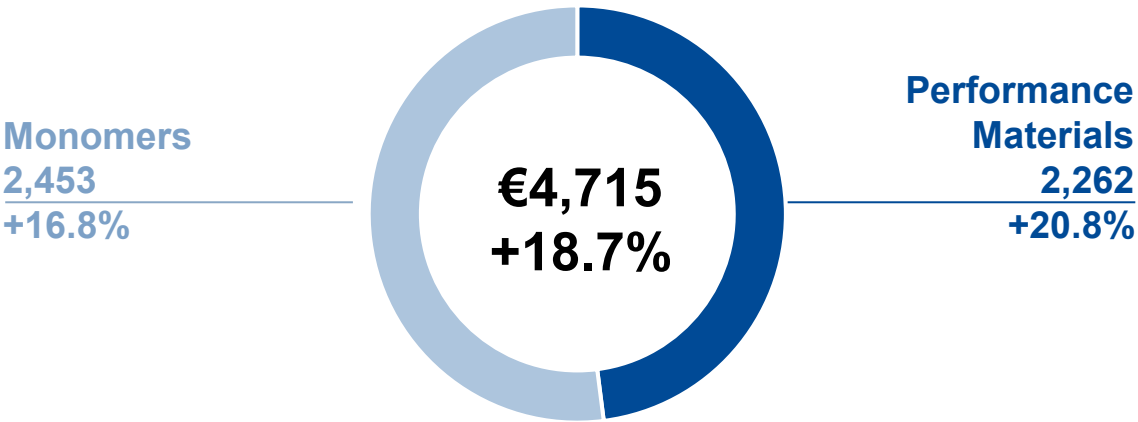


Sales development	Volumes	Prices	Portfolio	Currencies
Q3 2022 vs. Q3 2021	↓ -12.4%	↑ 8.7%	↓ -0.1%	↑ 6.6%

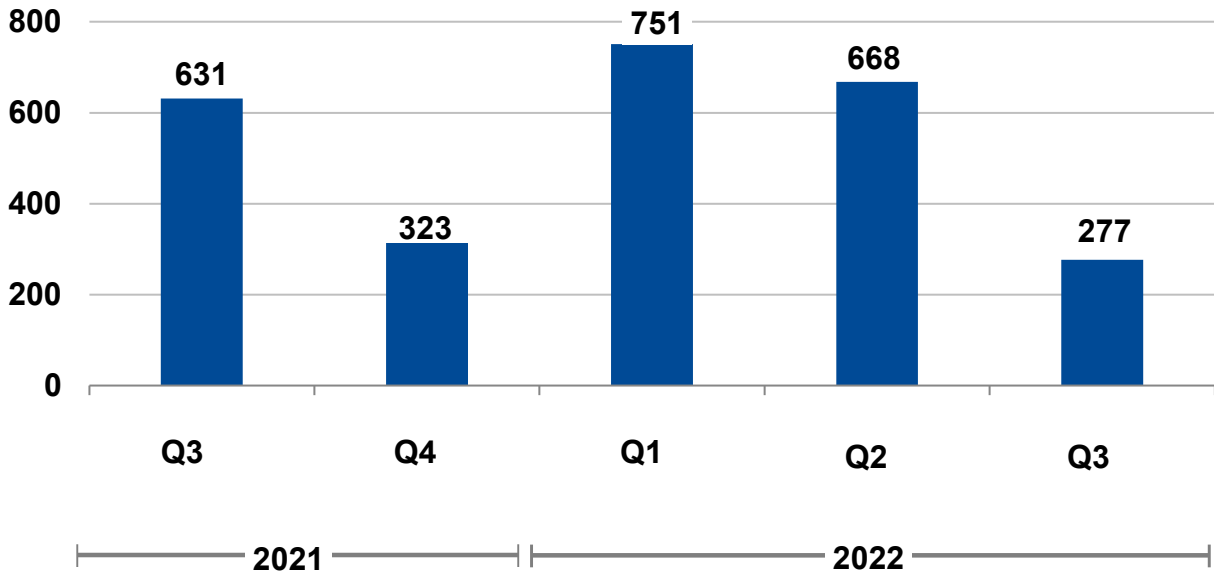
<sup>1</sup> BASF's ethylene value chain was reorganized as of January 1, 2022. In this connection, the polyolefins and styrenics businesses of the joint venture BASF-YPC Company Ltd., Nanjing, China, which were previously reported under Other, were allocated to the Petrochemicals division. The prior-year figures have been adjusted.

# Materials

Sales Q3 2022 vs. Q3 2021  
million €



EBIT before special items  
million €

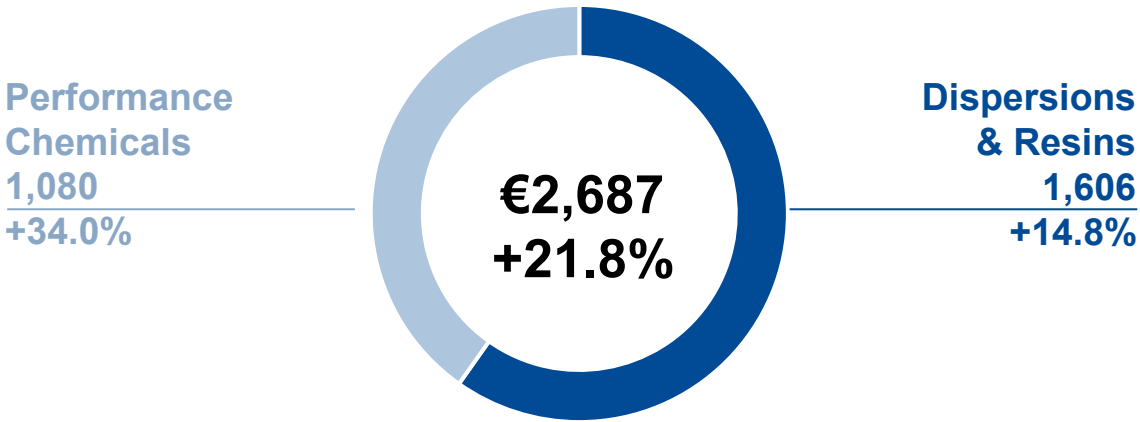


Sales development	Volumes	Prices	Portfolio	Currencies
Q3 2022 vs. Q3 2021	<div>↓</div> -8.9%	<div>↑</div> 19.9%	<div>↓</div> -0.1%	<div>↑</div> 7.8%

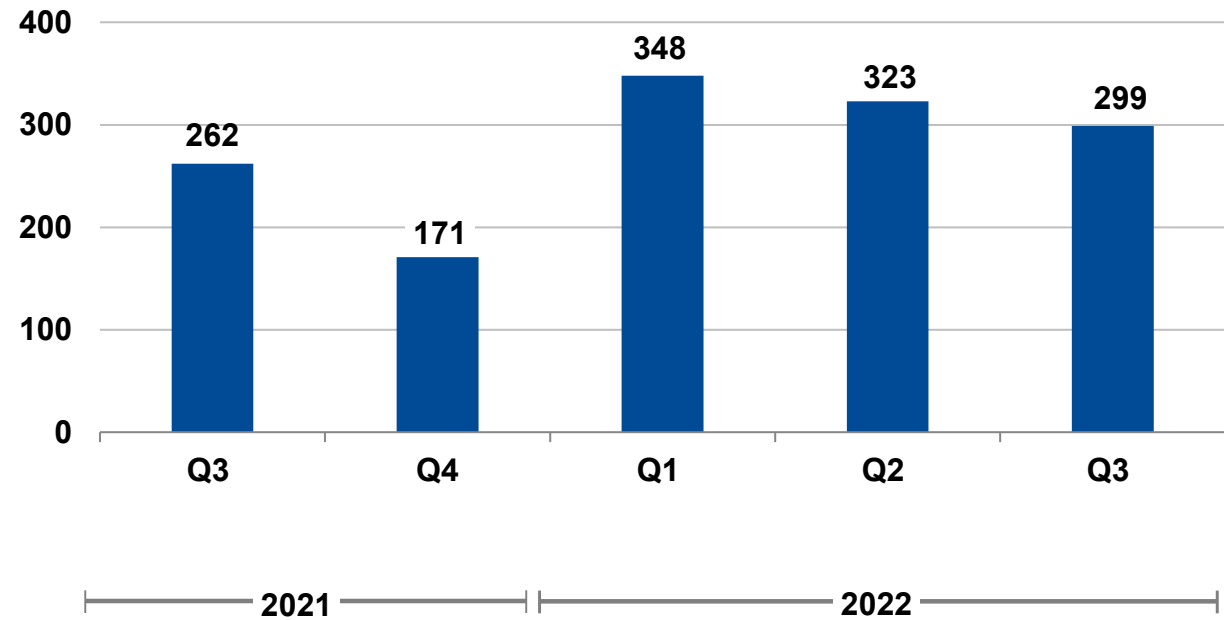


# Industrial Solutions

Sales Q3 2022 vs. Q3 2021  
million €



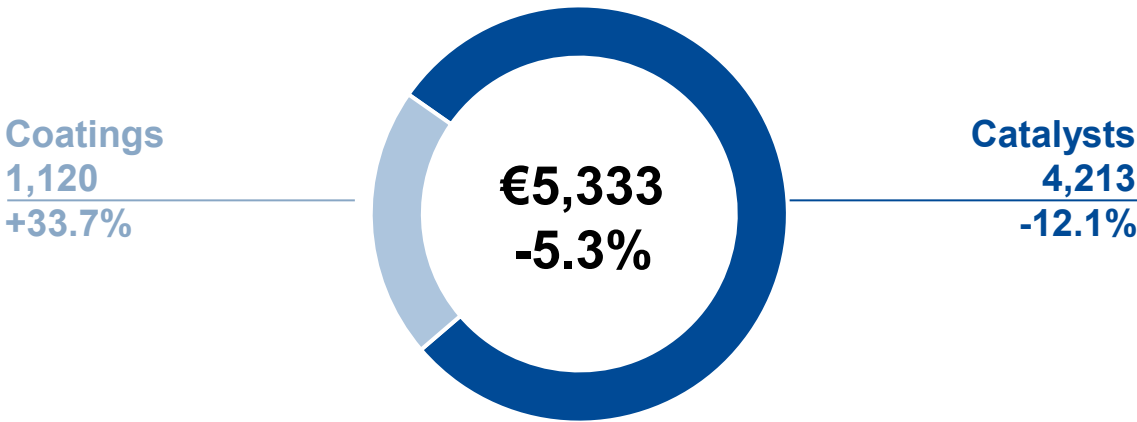
EBIT before special items  
million €



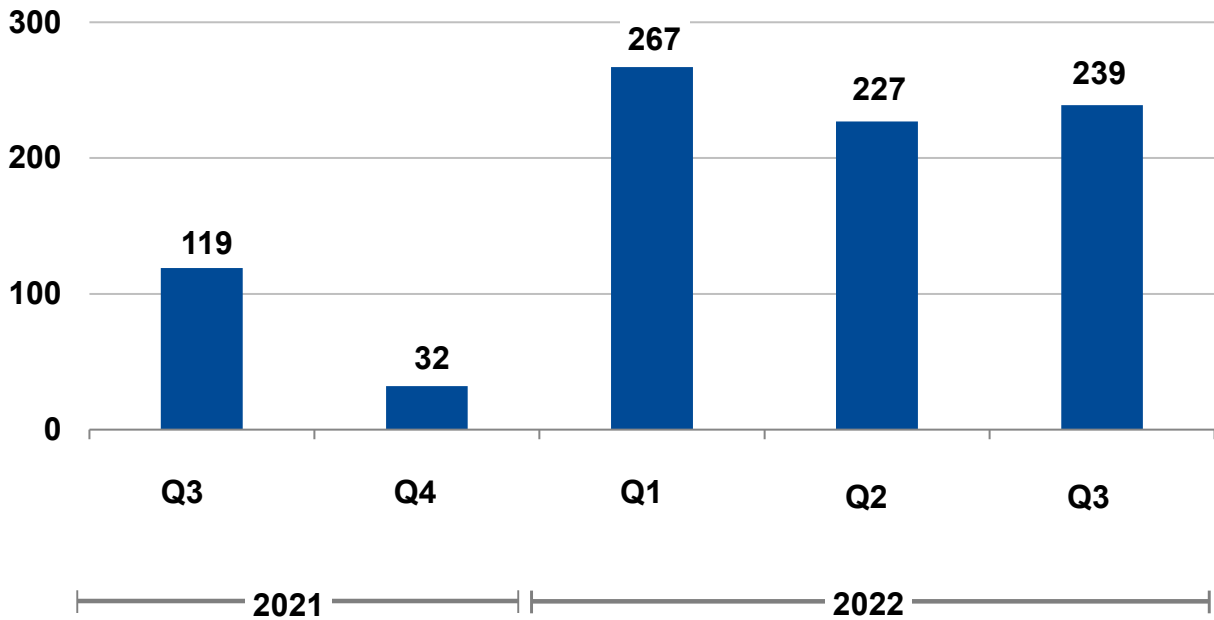
Sales development	Volumes	Prices	Portfolio	Currencies
Q3 2022 vs. Q3 2021	<div>↓</div> -4.4%	<div>↑</div> 17.4%	<div>↓</div> -0.1%	<div>↑</div> 8.9%

# Surface Technologies

Sales Q3 2022 vs. Q3 2021  
million €



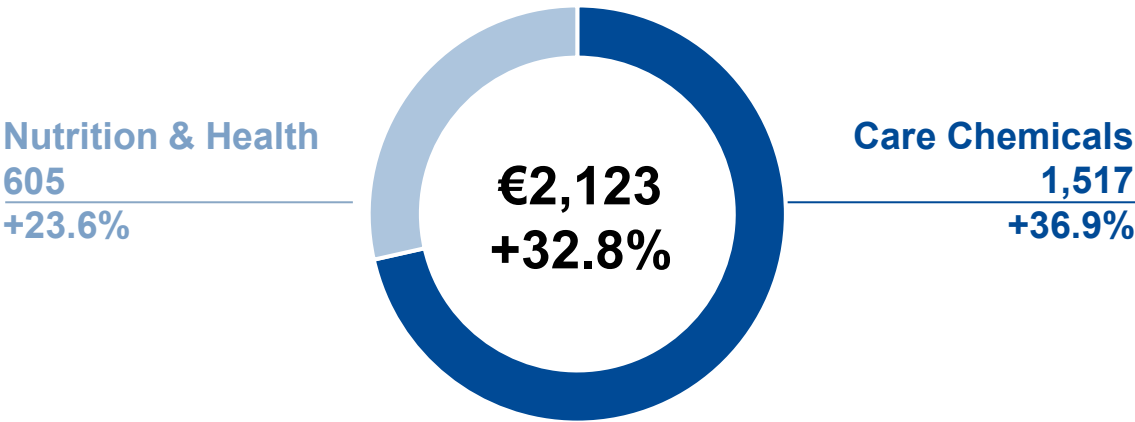
EBIT before special items  
million €



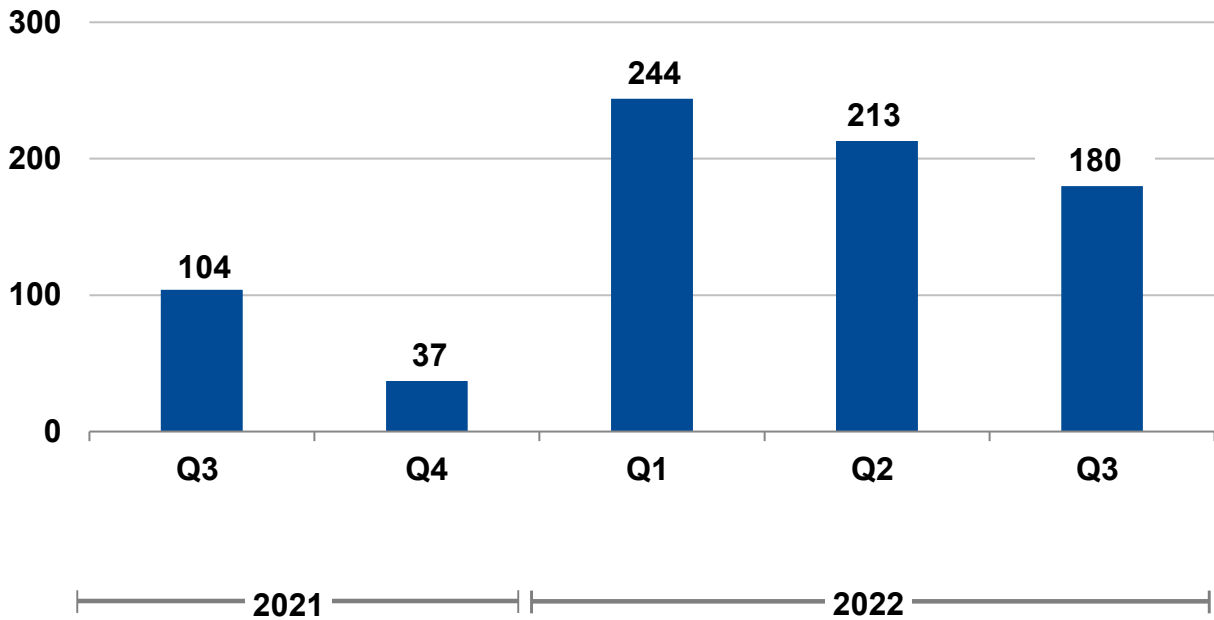
Sales development	Volumes	Prices	Portfolio	Currencies
Q3 2022 vs. Q3 2021	<div>↓</div> -8.7%	<div>↓</div> -8.8%	<div>↑</div> 3.7%	<div>↑</div> 8.5%

# Nutrition & Care

Sales Q3 2022 vs. Q3 2021  
million €



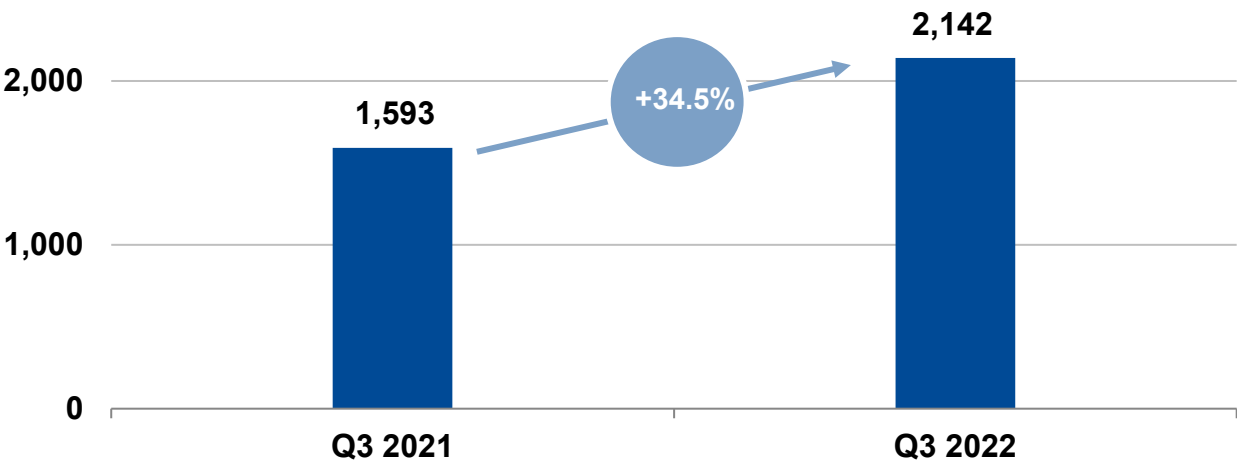
EBIT before special items  
million €



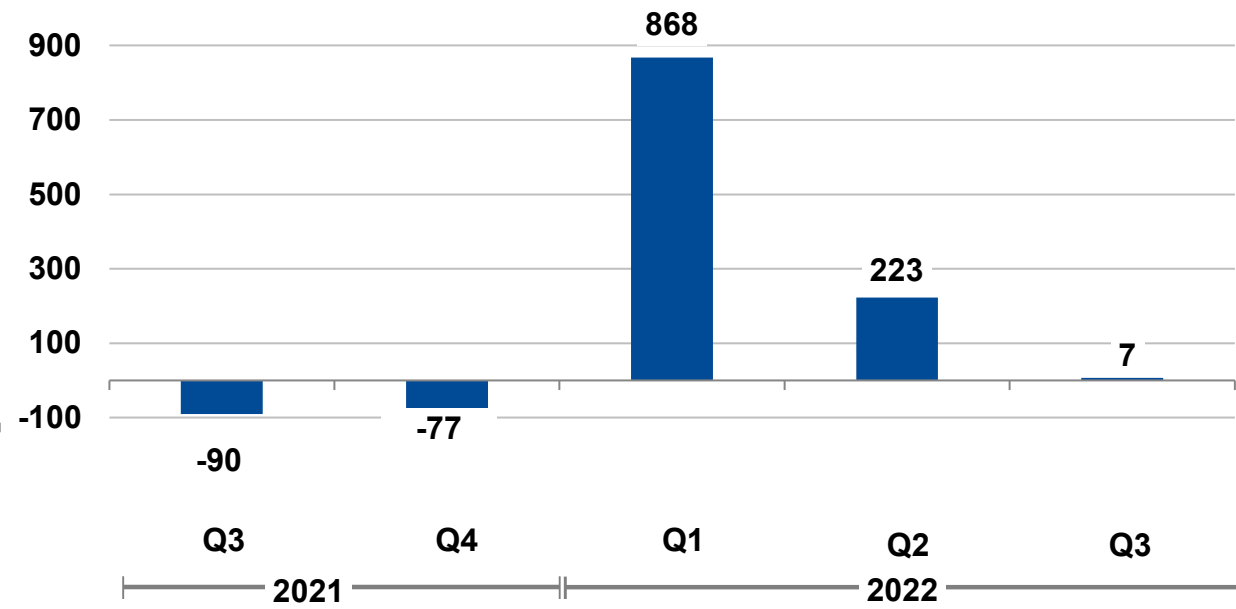
Sales development	Volumes	Prices	Portfolio	Currencies
Q3 2022 vs. Q3 2021	<div>↓</div> -1.1%	<div>↑</div> 27.5%	<div>↓</div> -0.2%	<div>↑</div> 6.7%

# Agricultural Solutions

Sales Q3 2022 vs. Q3 2021  
million €



EBIT before special items  
million €



Sales development	Volumes	Prices	Portfolio	Currencies
Q3 2022 vs. Q3 2021	<div> <div>↑</div> <div>4.6%</div> </div>	<div> <div>↑</div> <div>16.9%</div> </div>	<div> <div>↓</div> <div>-0.8%</div> </div>	<div> <div>↑</div> <div>13.7%</div> </div>

# Review of “Other”

Financial figures		Q3 2022	Q3 2021
		Million €	Million €
<b>Sales</b>		<b>1,153</b>	<b>976</b>
<b>EBIT before special items<sup>1</sup></b>		<b>22</b>	<b>-39</b>
of which	Costs of corporate research	-73	-76
	Costs of corporate headquarters	-65	-65
	Foreign currency results, hedging and other measurement effects	38	-41
	Other businesses	7	15
Special items		-5	-31
<b>EBIT<sup>1</sup></b>		<b>17</b>	<b>-68</b>

<sup>1</sup> BASF's ethylene value chain was reorganized as of January 1, 2022. In this connection, the polyolefins and styrenics businesses of the joint venture BASF-YPC Company Ltd., Nanjing, China, which were previously reported under Other, were allocated to the Petrochemicals division. The prior-year figures have been adjusted.

# Outlook 2022 for BASF Group

Outlook 2022	
Sales	€86 billion – €89 billion
EBIT before special items	€6.8 billion – €7.2 billion
ROCE	10.5% – 11.0%
CO <sub>2</sub> emissions	18.4 – 19.4 million metric tons

## Underlying assumptions (previous assumptions in parentheses)

- Growth in gross domestic product: +2.5% (unchanged)
- Growth in industrial production: +2.5% (+3.0%)
- Growth in chemical production: +2.0% (+2.5%)
- Average euro/dollar exchange rate: \$1.05 per euro (\$1.07 per euro)
- Average annual oil price (Brent crude): \$100 per barrel (\$110 per barrel)



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Unique  
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in Asia

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Battery  
materials  
driving electro-  
mobility and  
future growth

# Our commitments to reaching the Paris Climate Agreement



**2030**

**25%**

CO<sub>2</sub> emissions  
reduction  
(compared with 2018)<sup>1</sup>



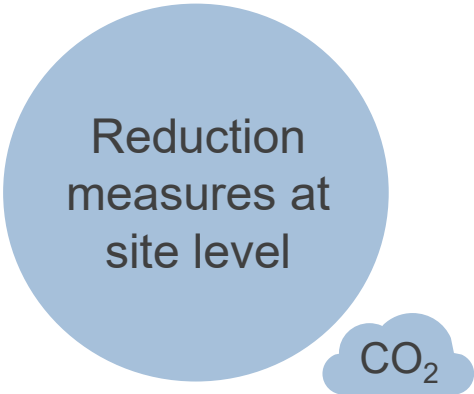
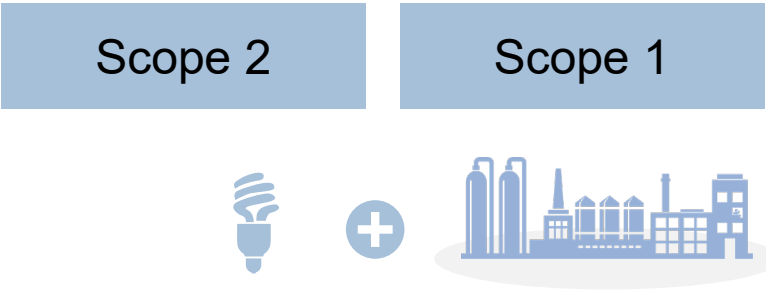
**2050**

**net zero**  
CO<sub>2</sub> emissions<sup>1</sup>

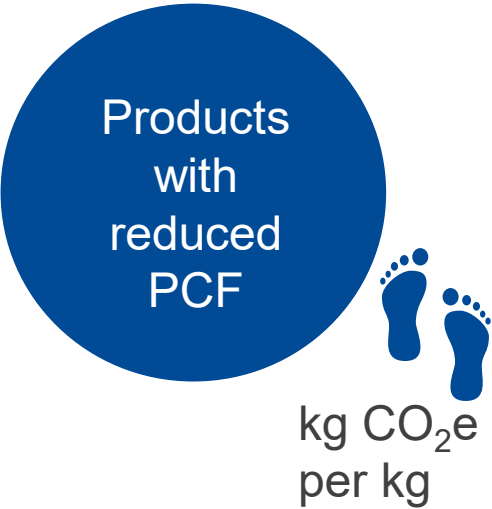
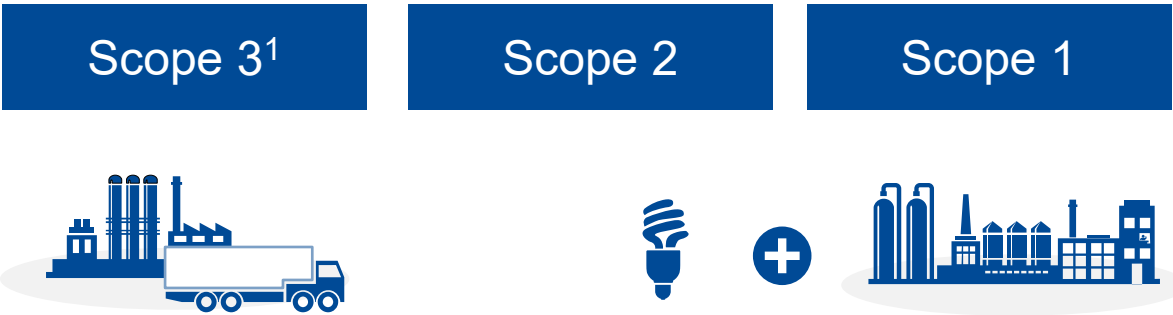


# Our two perspectives on emission reductions

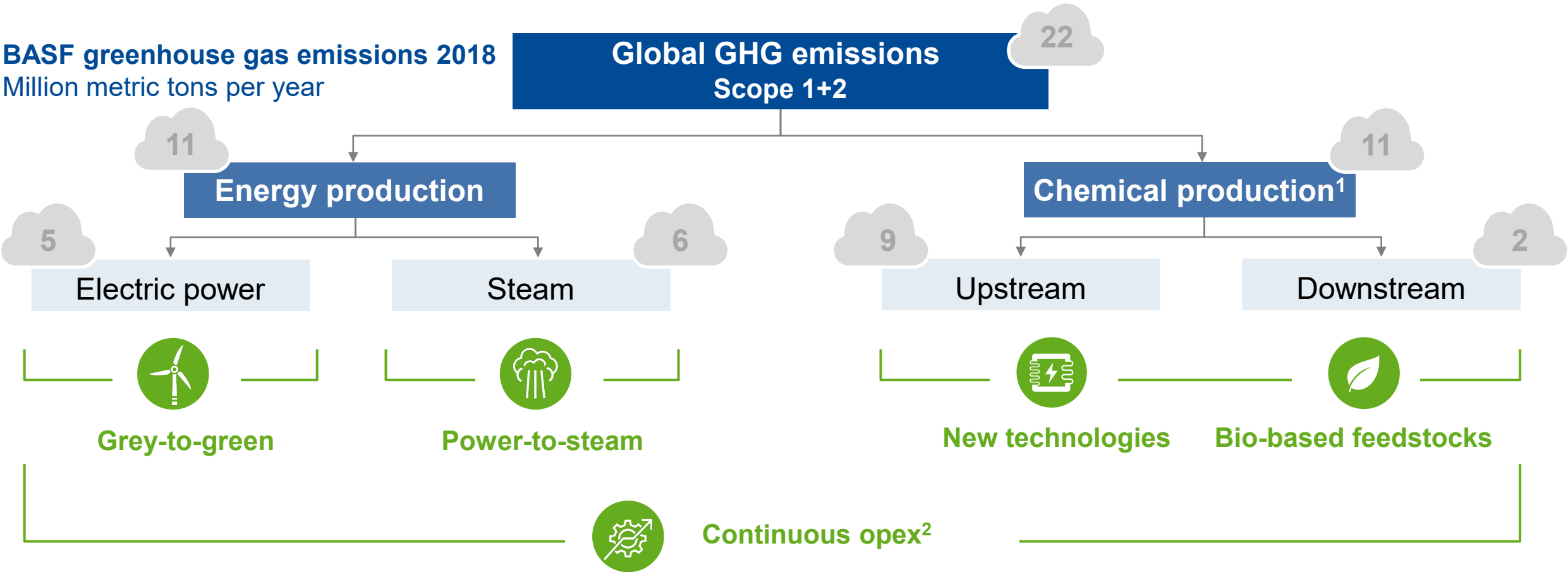
## BASF Group targets



## Product carbon footprint (PCF)



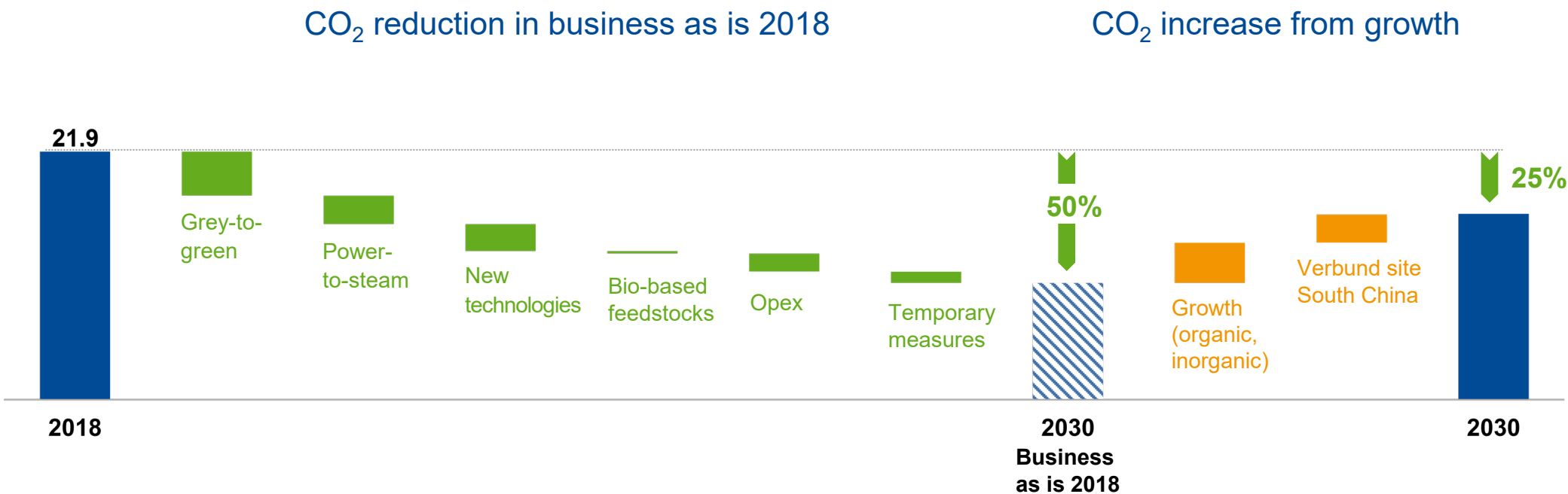
# No downstream decarbonization without upstream decarbonization



# Our path to reduce BASF emissions from 2018 to 2030

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

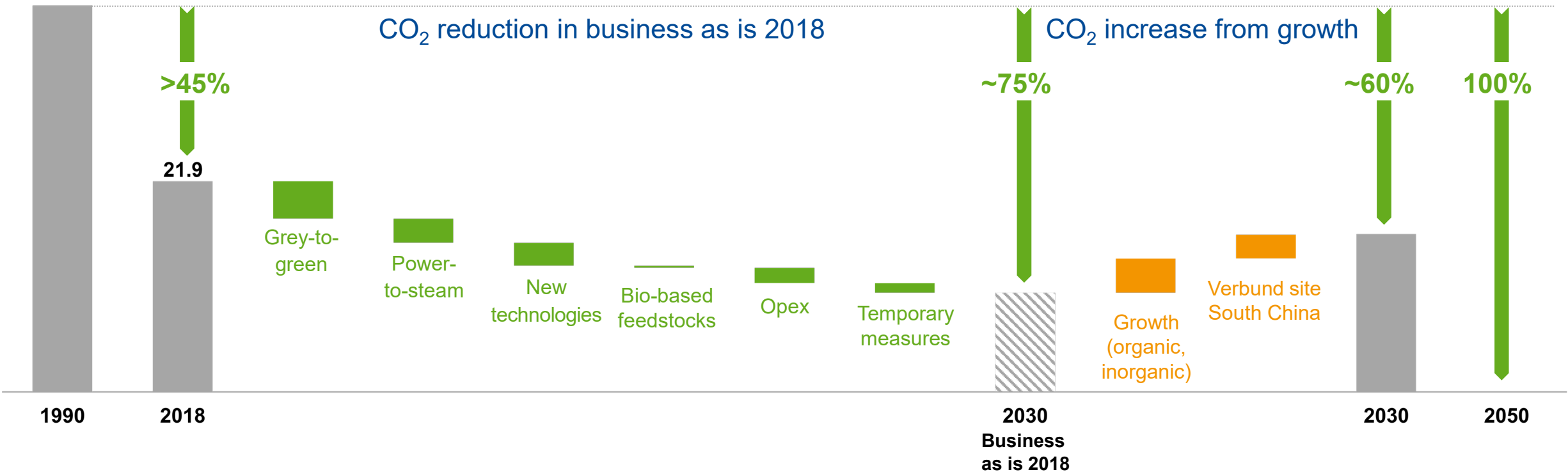
Million metric tons



# Our path to reduce BASF emissions from 1990 to 2050

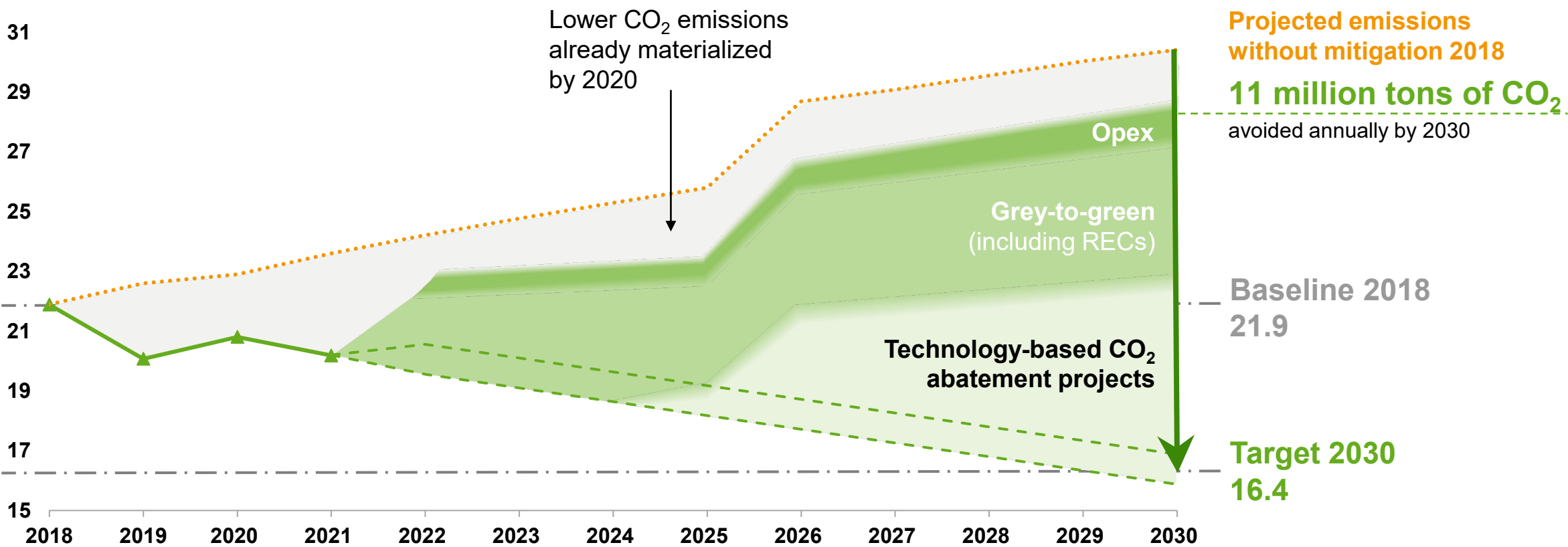
## BASF greenhouse gas emissions (Scope 1 and Scope 2) 1990–2050

Million metric tons



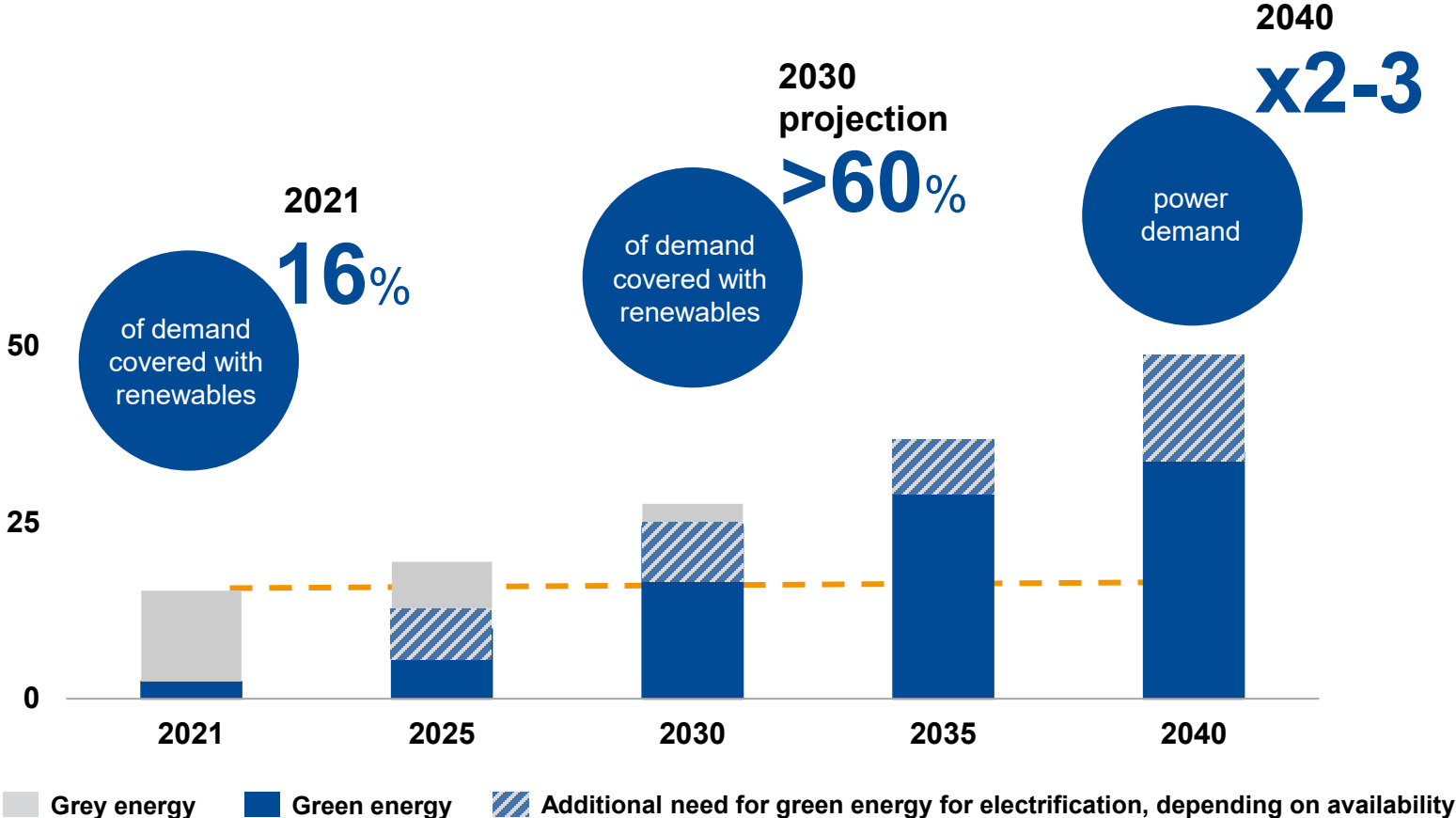
# Our roadmap is backed by robust calculations and solid planning

**Projected BASF greenhouse gas emissions**  
Million metric tons CO<sub>2</sub> equivalents



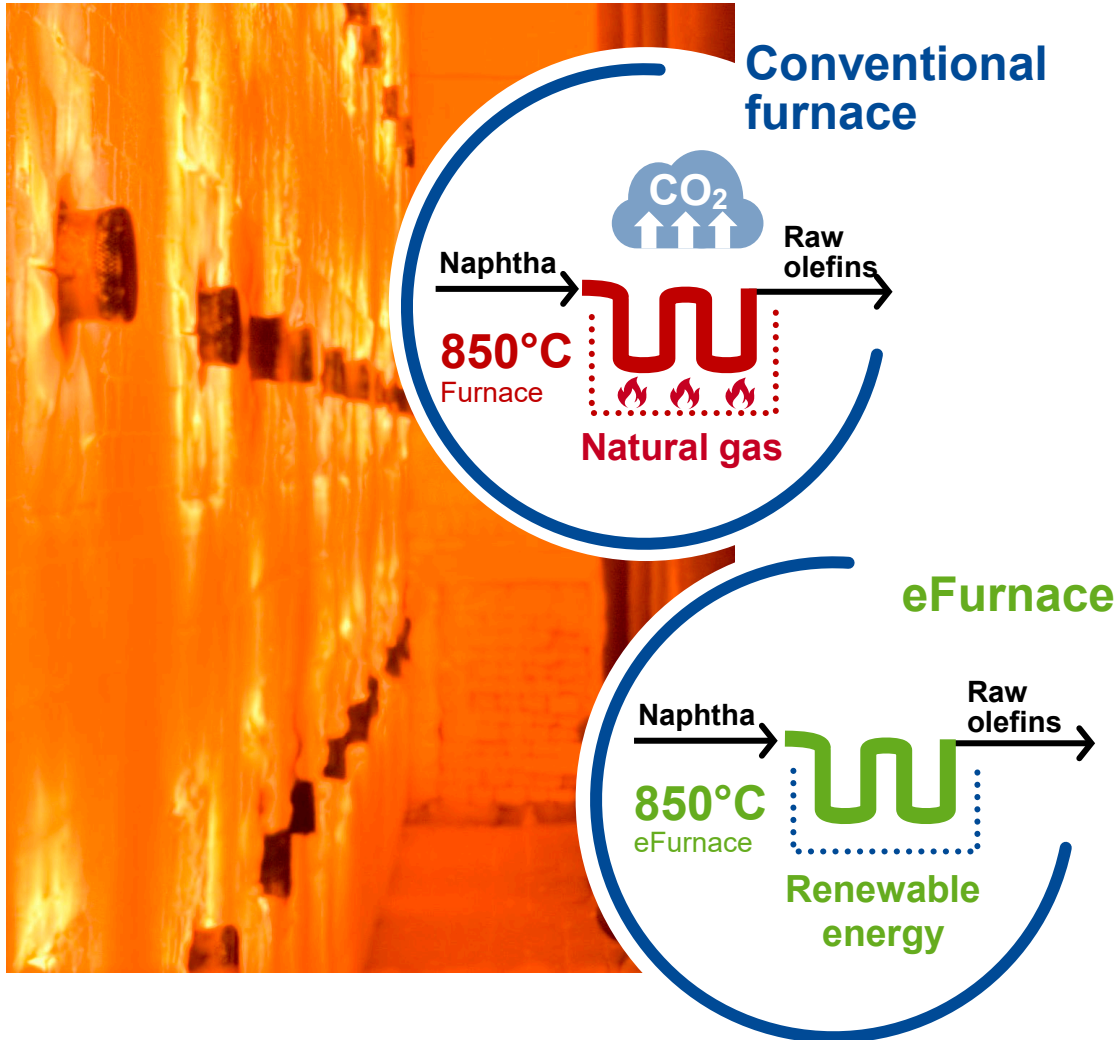
# Switching our power to renewable energy will be the main driver of emission reduction until 2025

BASF global power demand and renewable supply projection  
Terawatt hours



- BASF strives for **100% of power demand 2021 to be green 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**

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



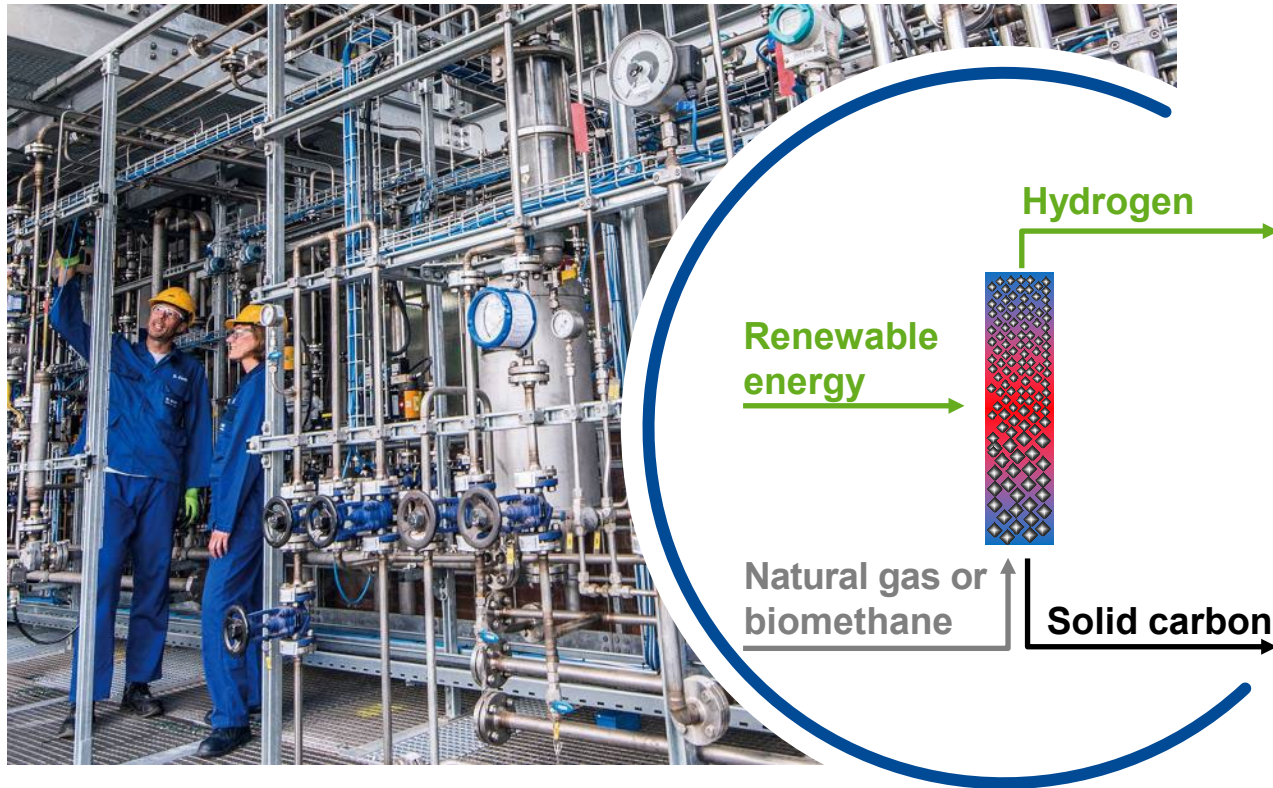
- Construction of demonstration plant started at Ludwigshafen Verbund site in **cooperation with SABIC and Linde**
- **Funding granted** by German Federal Ministry for Economic Affairs and Climate Action
- **Startup** of the demonstration plant **planned for 2023**

Supported by:



on the basis of a decision  
by the German Bundestag

# Methane pyrolysis combines low emissions with low energy demand



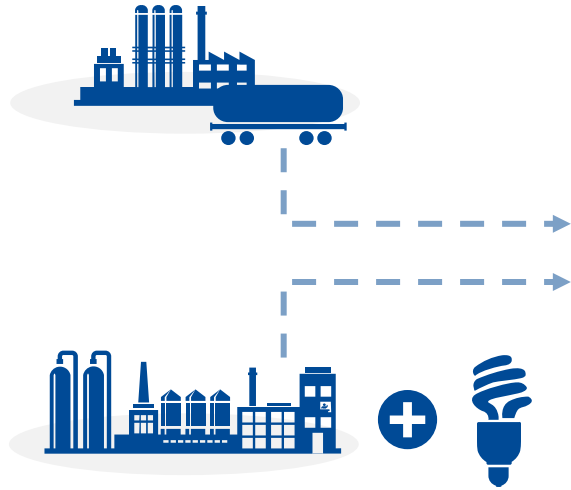
- **Methane pyrolysis** requires around **80% less electricity** than water electrolysis
- **Funding** for pilot reactor **was granted** by German Federal Ministry of Education and Research<sup>1</sup>
- **Milestone achieved:** Pilot reactor at the Ludwigshafen site started successfully in Q2 2021
- Start-up of **first commercial plant projected before 2030**



# 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

CO<sub>2</sub>



Product carbon footprints of sales products



## Customer benefits

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

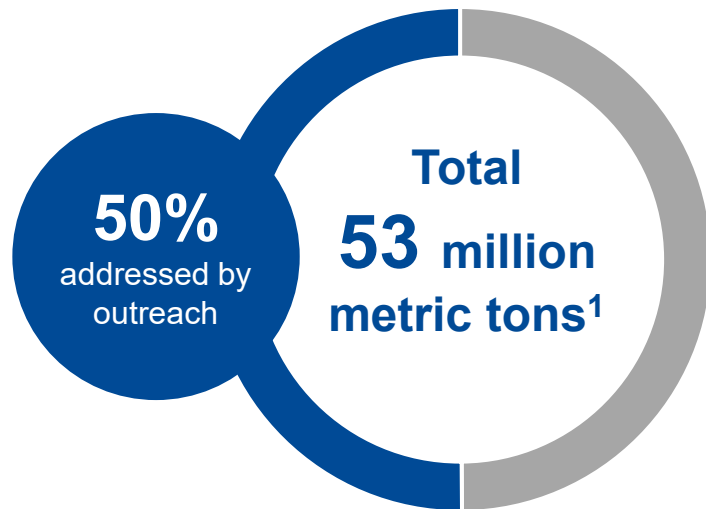
<sup>1</sup> Energy generation and chemical processes

<sup>2</sup> ISO 14067:2018

<sup>3</sup> ISO 14040:2006, 14044:2006, 14067:2018, GHG Protocol Product Standard

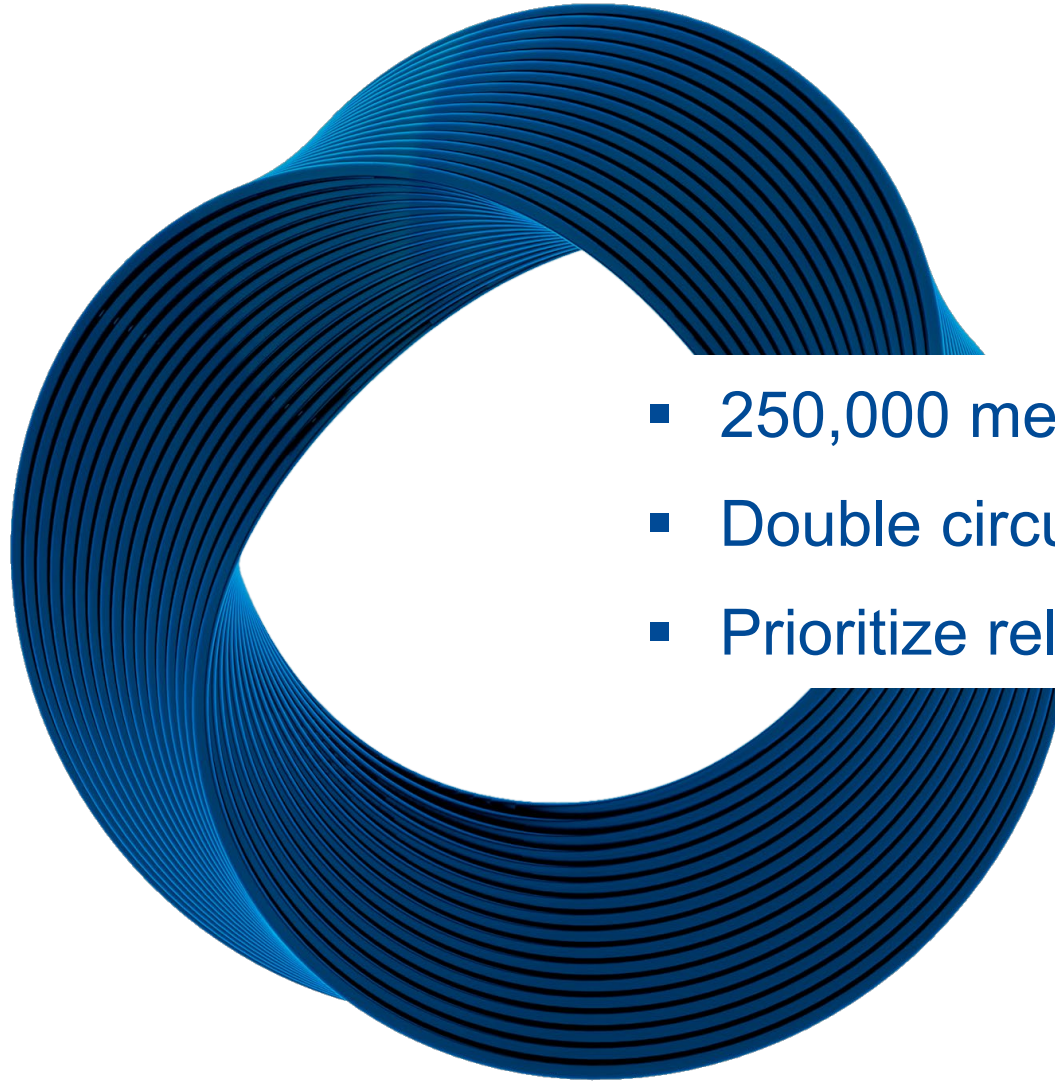
# We create transparency on the CO<sub>2</sub> emissions of our raw materials as an important step in reducing BASF's Scope 3 emissions

## BASF's CO<sub>2</sub>e emissions from raw material purchase 2021



- BASF is supporting various initiatives to **develop and establish workable standards** for the chemical industry
- **Supplier CO<sub>2</sub> Management Program rolled-out** in 2021 to collect specific PCFs and align on reduction targets
- More than **700 key suppliers** have been approached by the end of 2021, accounting for **50% of Scope 3 emissions<sup>1</sup>**
- 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

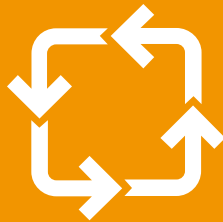
## – BASF contribution: ChemCycling™

### Close the loop

Plastic waste and end-of-life tires are converted into liquid feedstock and fed into BASF's value chains

### ChemCycling™

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



- Investments in **Quantafuel** (pyrolysis of mixed plastic waste) and **Pyrum** (pyrolysis of end-of-life tires); uptake supply agreements with both companies
- Agreement with **New Energy** for uptake of pyrolysis oil derived from end-of-life tires and for a joint feasibility study for adaption of technology to other plastic waste streams
- Agreement with **ARCUS** on uptake of pyrolysis oil from mixed plastic waste

Linear economy

Landfill

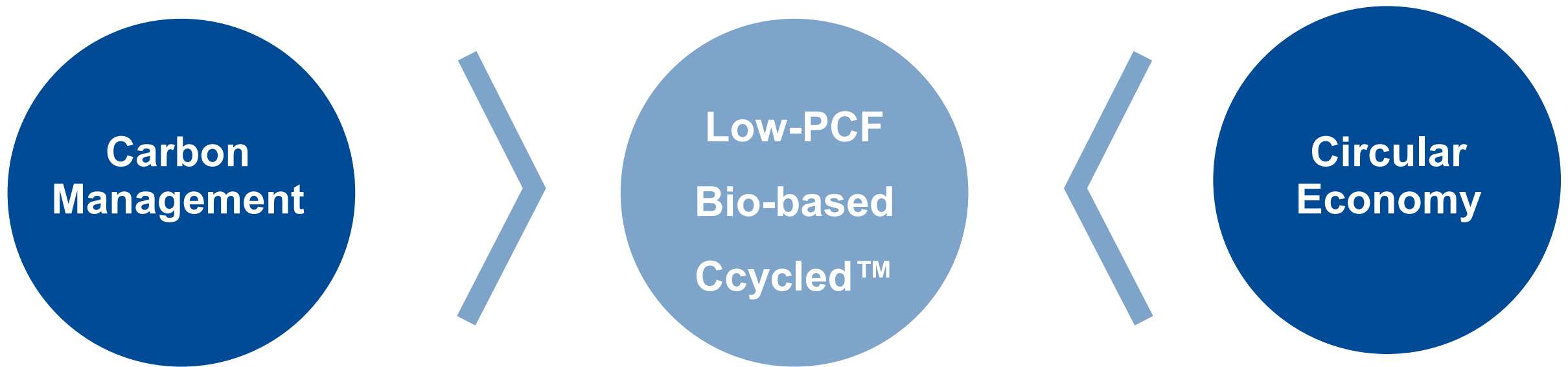
Littering

Incineration

Mechanical recycling



# Transformation requires a broad technology portfolio



CO<sub>2</sub> avoidance potential per megawatt hour of electrical energy used (metric tons of CO<sub>2</sub>/MWh)

- Methane pyrolysis ~0.9
- Heat pumps ~0.6-1.0
- eDrive NH<sub>3</sub> ~0.7
- eFurnace ~0.2
- Water electrolysis ~0.2

Target: We aim at doubling our circular sales to reach €17 billion by 2030

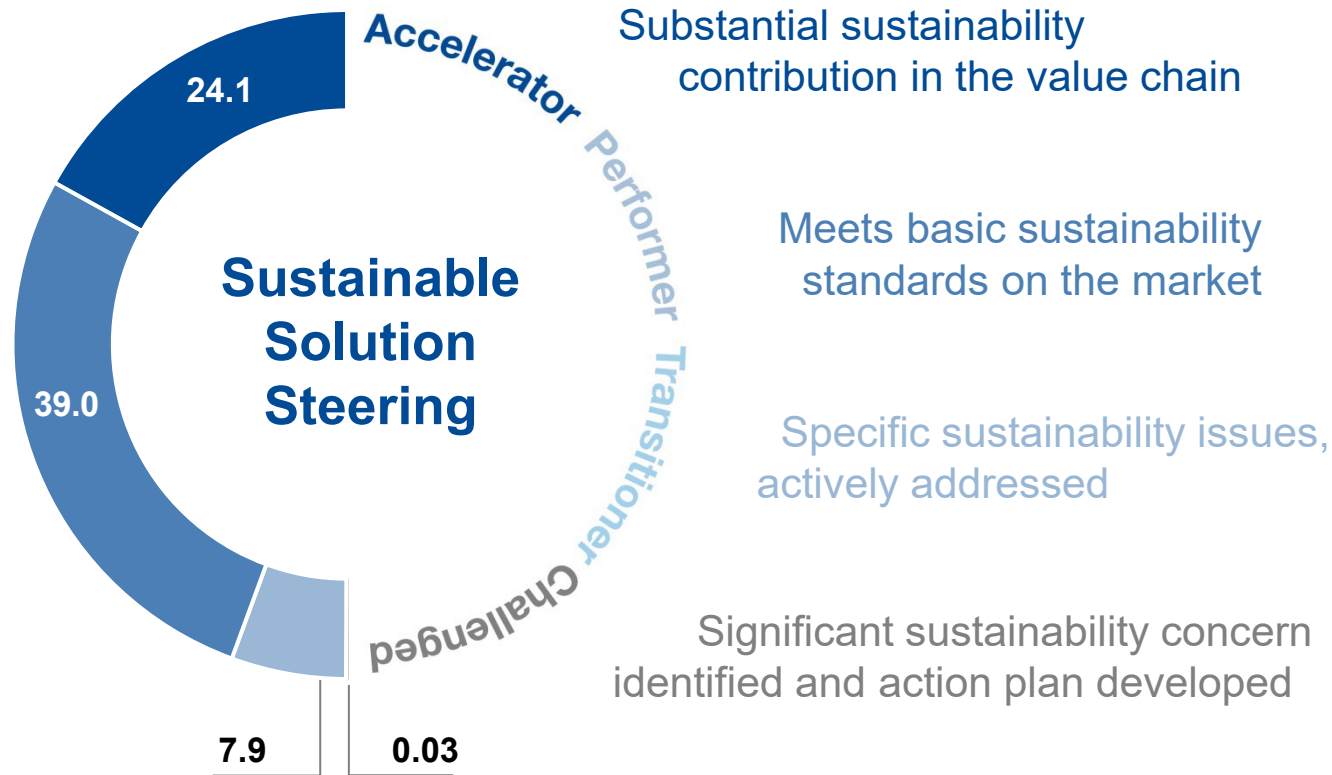
Focus on closing the loops

- Renewable-based feedstocks
- Recycled-based feedstocks
- Enable recyclability and/or biodegradability

# €24.1 billion of BASF Group sales from sustainable solutions

## – leveraging our innovation power

**Absolute sales 2021**  
billion €



- Portfolio segmentation: >56,000 specific product applications analyzed by end of 2021 (€71 billion in sales, 98.7% of relevant portfolio<sup>1</sup>)
- Accelerator margins on average ~6 percentage points above the rest of assessed portfolio
- We will stop selling Challenged products within maximum five years after classification
- Target of achieving €22 billion of sales with Accelerator products by 2025 achieved in 2021; portfolio steering target to be adjusted in the course of 2022



# Innovations for a sustainable future – Accelerator examples



**Lipofructyl® Argan LS 9779 –  
Oil for skin and hair care**



**Mattex® PRO – Additive in coatings  
with lower emissions**



**Serifel® – Biological fungicide  
against crop diseases**



**Elastopir® – PIR system with good  
insulation properties**



**Tinuvin® NOR® 356 – Light  
stabilizer to reduce plastic waste**



**Baxxodur® EC 301 – Epoxy system  
for cost-competitive wind blades**

# BASF in sustainability ratings and rankings

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## 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.

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## CDP Disclosure Leadership

In 2021, BASF achieved a score of A- in all categories we are participating in: “Climate,” “Water” and “Forest,” thus attaining leadership status again.

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## 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.

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## 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.

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## ISS ESG

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

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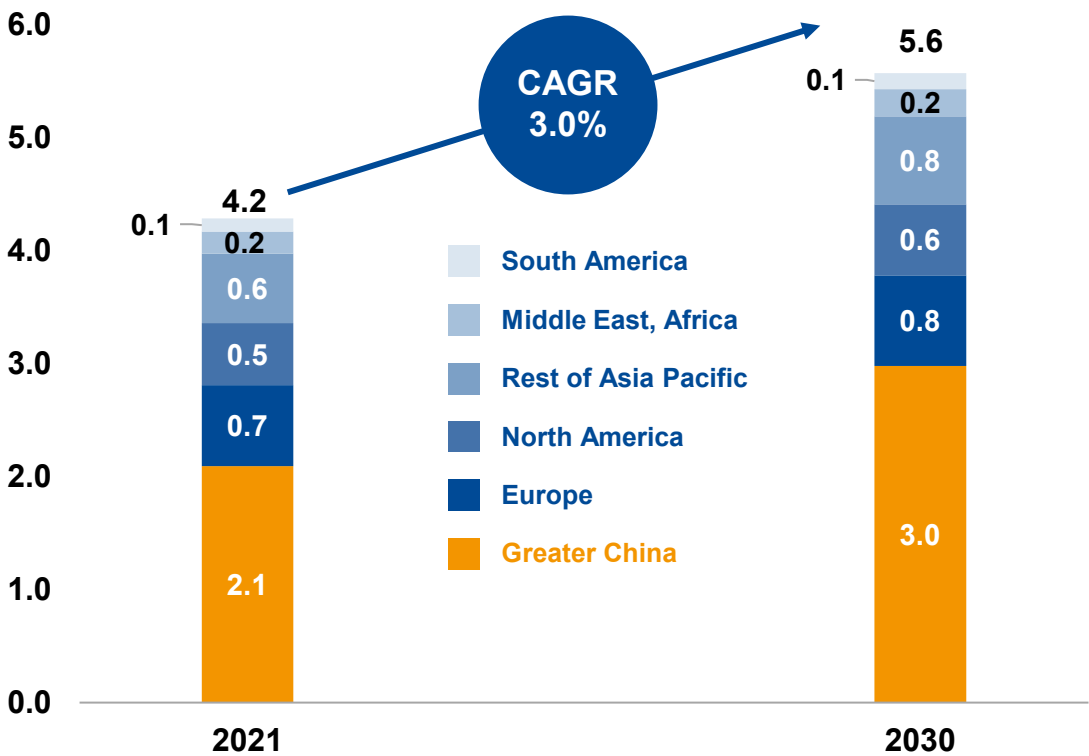
Unique  
position to  
capture growth  
in Asia

5

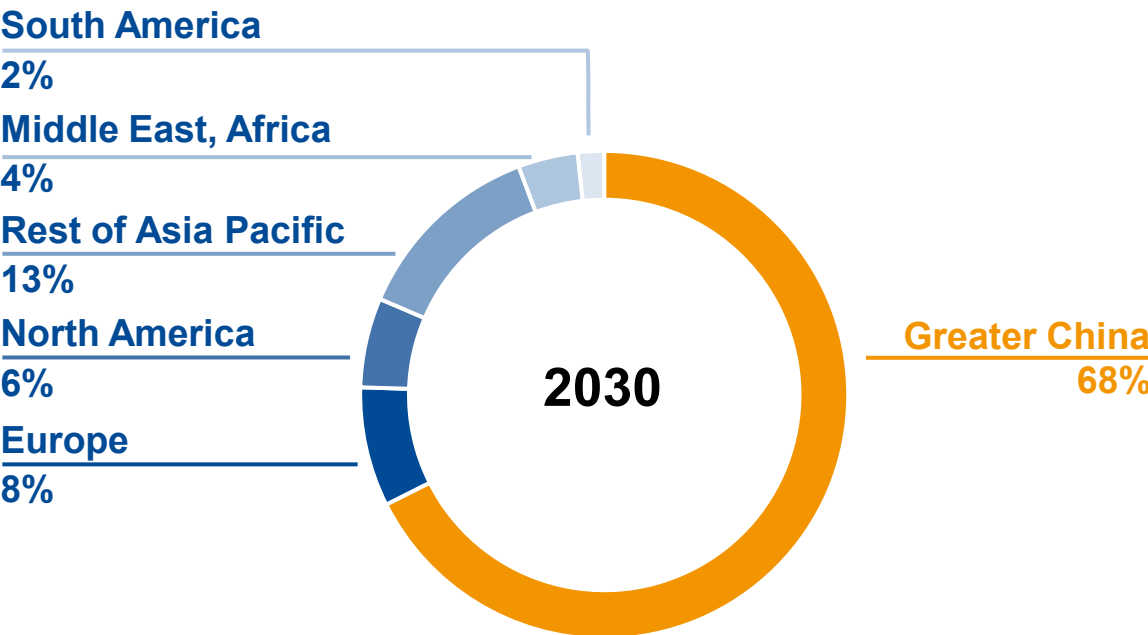
Battery  
materials  
driving electro-  
mobility and  
future growth

# China is the major growth driver for global chemical production: Two-thirds of growth will come from Greater China by 2030

Real chemical production<sup>1</sup>  
trillion US\$



Share of absolute chemical production growth by region  
%



# BASF's Verbund site in Nanjing is a prime example of our success in China

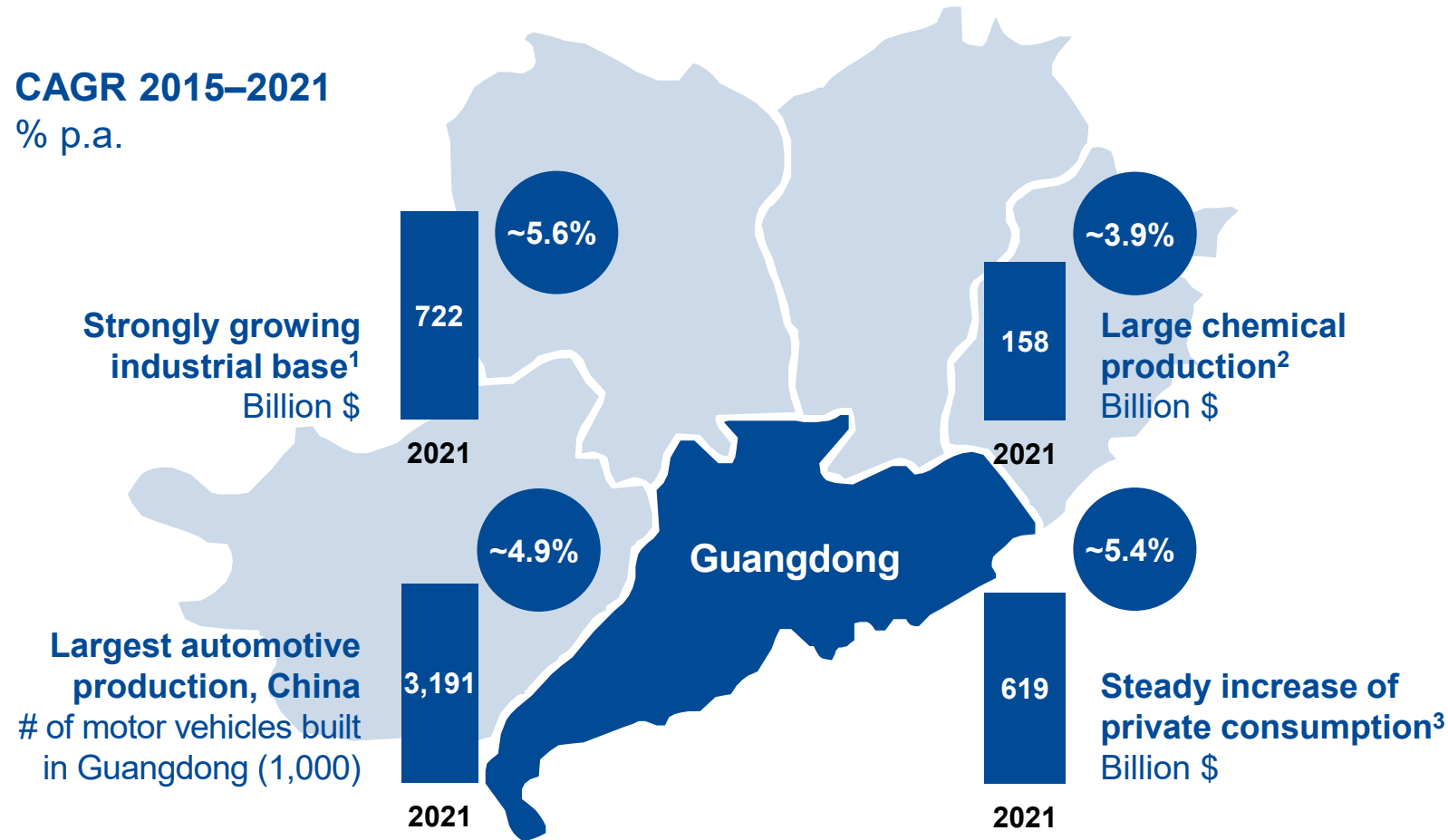


- **50:50 joint venture with Sinopec** founded in 2000, start-up in 2005, major expansions in 2011 and 2014
- Scope has **continuously expanded** over the years toward longer and more diversified value chains
- **Third-largest BASF site**, US\$5.8 billion gross investment (100%)
- Capacity: ~3 million metric tons per year; **33 production plants** including steam cracker
- Strong focus on operational excellence and consistent plant maintenance resulted in **best-in-class asset effectiveness**
- With **26% EBITDA margin<sup>1</sup>** BASF-YPC is one of the most profitable BASF sites

# Guangdong is home to key customers from fast-growing industries

## CAGR 2015–2021

% p.a.



## Market characteristics

- Over 126.2 million residents in Guangdong province (2020)<sup>4</sup>
- GDP Guangdong (2021): ~\$1.9 trillion (exceeding South Korea)
- GDP growth from 2021–2036: 5–6% p.a.
- Key customer industries: transportation, consumer goods, home and personal care, electronics
- Chemical products are generally undersupplied from local production

<sup>1</sup> Real secondary industry output, 2015-based. Guangdong Bureau of Statistics

<sup>2</sup> Real chemical gross output, 2015-based, inferred by gross output/value added ratio for China

<sup>3</sup> Real private consumption, 2015-based. National Bureau of Statistics with IHS forecast

<sup>4</sup> Guangdong Statistical Yearbook 2021

# Location in Zhanjiang enables BASF to capture long-term profitable growth in the fastest growing chemical market worldwide



- **Customers:** Proximity to the economic centers of China's fastest growing province Guangdong; shortest sea routes to Southeast Asia
- **Excellence in production:** Integrated Verbund platform, cutting edge technologies, smart solutions, deep seaport, world-class logistics
- **Developing downstream value chains:** BASF will focus on products that are in high demand, with options for further expansion
- **Differentiating from competitors beyond products:** Front-runner position in sustainability and circular economy
- **Leveraging industry ecosystems:** BASF will benefit from collaborations with neighbors and government incentives
- **Foreign trade advantages:** Guangdong province intends to set up Donghai Island as a free trade zone



# Main construction phases of the new Verbund site in Zhanjiang, China – stepwise approach

**Initial phase**  
on stream: 2022–2023

**First downstream plants:**  
Performance Materials for automotive and consumer industries

Engineering plastics  
and thermoplastic  
polyurethanes

**Phase 1**  
start-up: as of 2025

Heart of the Verbund:  
**Petrochemicals plus further  
downstream plants**

Steam  
cracker

C2 value chain

C3 value chain

C4 value chain

**Phase 2**  
start-up: as of 2028

**Verbund expansion**  
and diversification

Additional  
downstream plants

Backward integrated into world-scale  
upstream plants to achieve Verbund  
synergies in downstream value chains

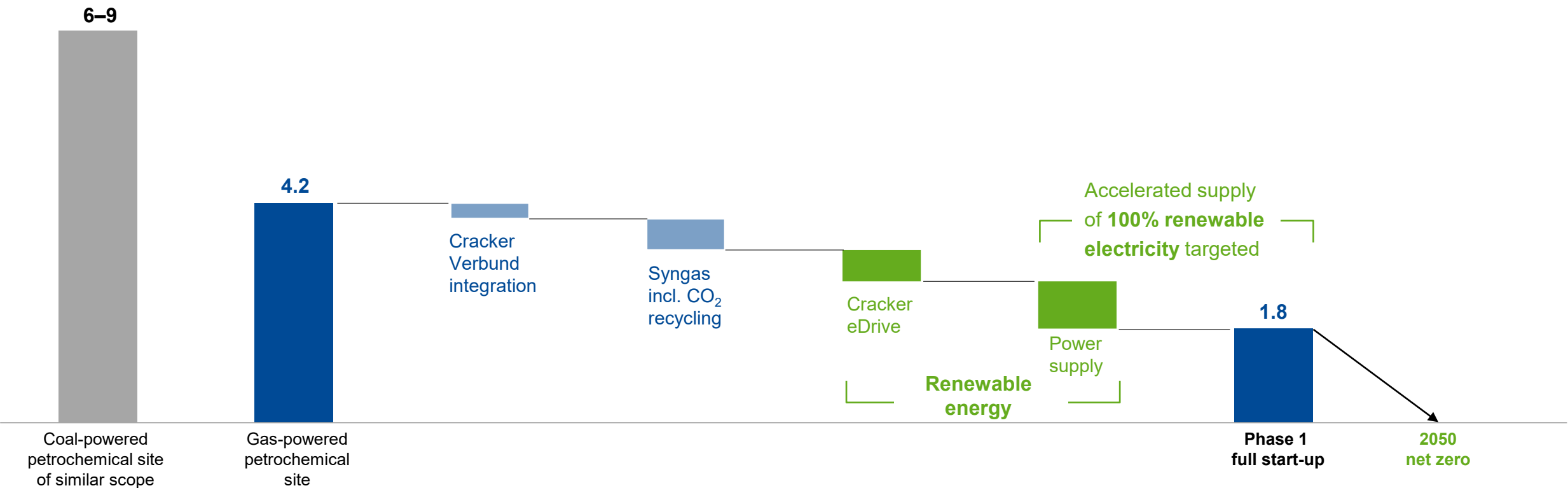
**Update on progress**

- First downstream plant started up in August 2022
- Construction of phase 1 plants started following final approval
- Stepwise construction approach allows for flexibility, especially with regard to phase 2

# Verbund site Zhanjiang uses latest technologies to reduce CO<sub>2</sub> footprint compared with standard gas-powered petrochemical site

## Projected CO<sub>2</sub> emissions of BASF at Verbund site in South China

Million metric tons



# Key financials of BASF's new Verbund site in Zhanjiang

## Projected key financials by 2030

**€4.0–5.0 billion**  
sales

**€1.0–1.2 billion**  
EBITDA

**Up to €10 billion**  
total capital expenditure  
(peak: 2023–2025)

- The **greenfield character** of the new Verbund site results in a higher share of infrastructure investments compared with a brownfield project
- Infrastructure investments will be **diluted with future investments/expansions**
- The new Verbund site will be BASF's **key platform for long-term profitable and sustainable growth** in China even beyond phase 1 and phase 2



# BASF's new Verbund site in Zhanjiang: Key takeaways

**China's macroeconomic environment is robust** and develops toward more self-sufficiency and sustainability

**Guangdong province is the economic growth engine of China** and a powerhouse of BASF's key customer industries

**BASF is very well positioned to capture future growth** in China by leveraging its unique Verbund know-how and longstanding relationships

**BASF has a proven track record** of strong top line and earnings growth in Greater China

The new Verbund site will be a **key platform for long-term profitable and sustainable growth** of BASF Group

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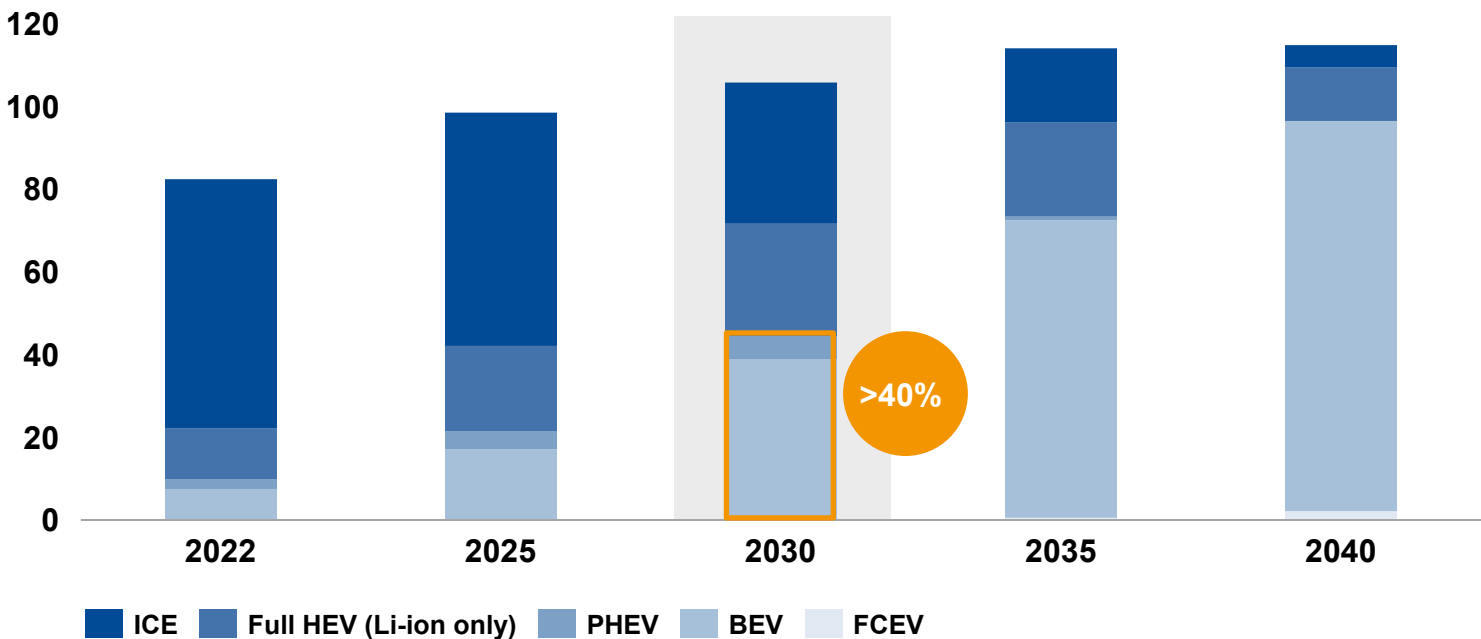
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Battery  
materials  
driving electro-  
mobility and  
future growth

# The automotive industry is in the middle of a major transformation towards electromobility

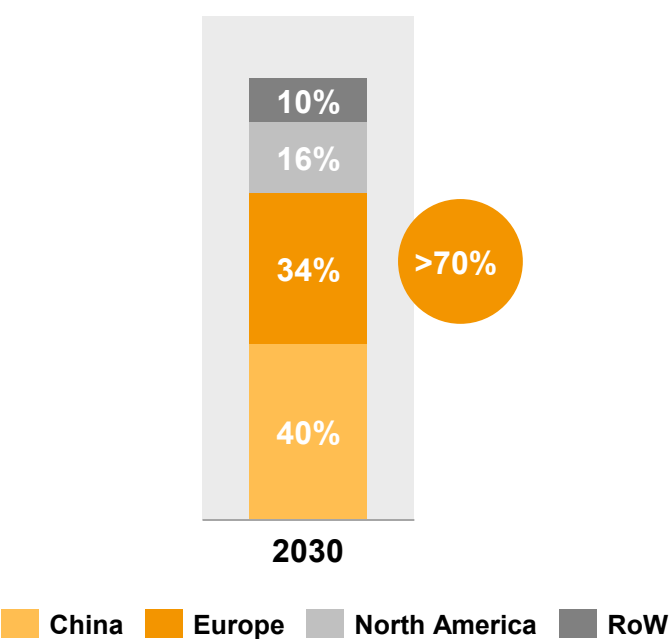
## Powertrain development

Light-duty vehicle production volume [million units]



## Regional BEV split

[%]

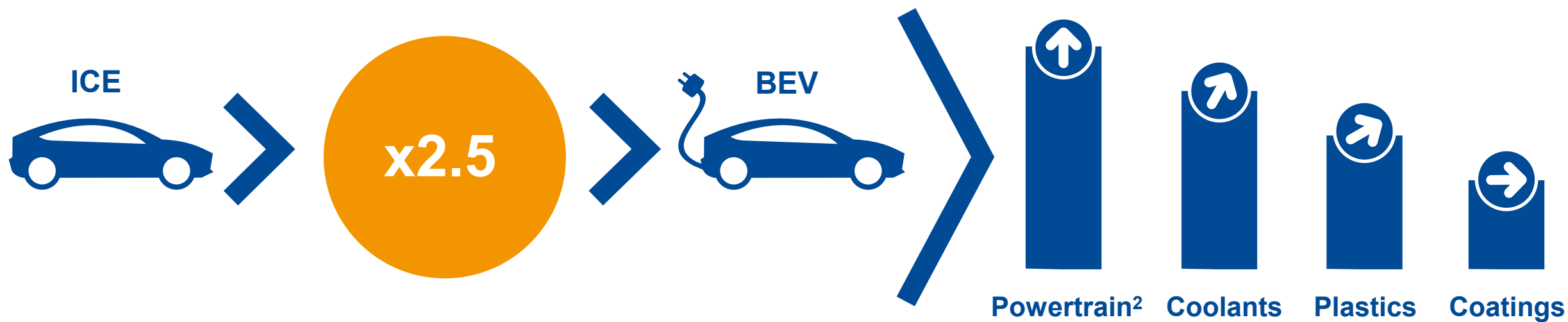


By 2030, we expect that >40% of all new cars will be BEVs and PHEVs with China and Europe representing >70% of global demand

# The chemical content per car is higher in a BEV compared to ICE, with CAM as the single largest growth opportunity

Chemical content per car

Main contributors<sup>1</sup>  
difference in € per car vs. conventional



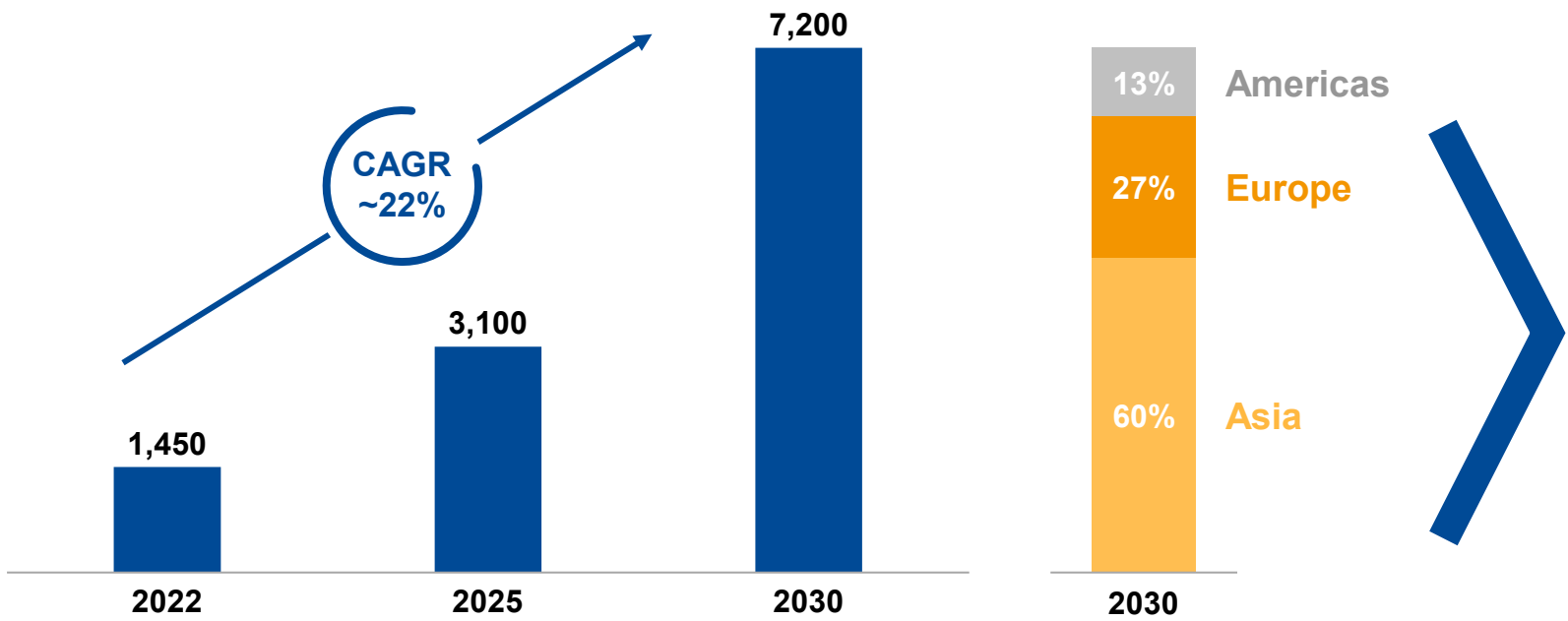
The cathode active material (CAM) as key component of any battery cell more than doubles the chemical content which can be found in today's average ICE vehicle

<sup>1</sup> Only representative for relative change in projected sales

<sup>2</sup> Emission catalyst vs. cathode active material (both incl. metals)

# The market for CAM will grow by ~22% per year and reach a total size of 7,200 kt by 2030

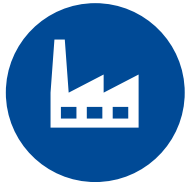
Global CAM market forecast<sup>1</sup>  
kt



Rapid growth of global EV demand ...

... accelerates the need for global CAM capacity investments and ...

... drives demand for base metals (i.e., Ni, Co, Li)



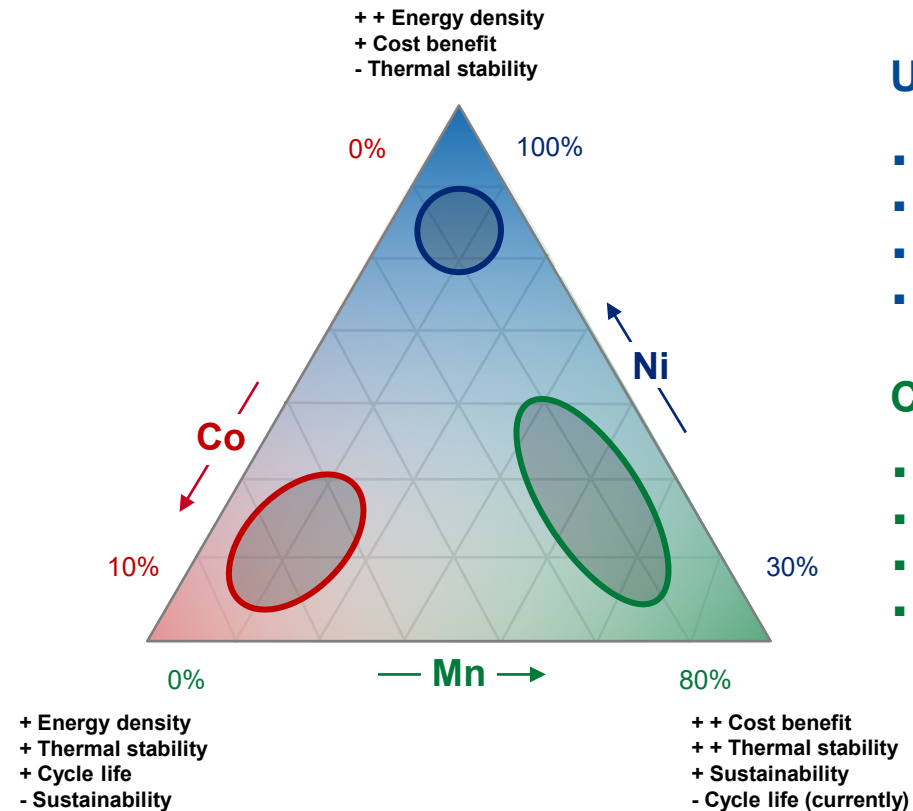
CAM market size expected to reach €150–200 billion by 2030, driven by battery performance, safety and cost aspects – which are all key parameters for BEVs

<sup>1</sup> All applications (e-mobility, energy storage systems, consumer electronics) and all cathode chemistries; market size can vary significantly due to volatility in metal prices; status as of September 2022

# Product innovation enables the broadest CAM portfolio in the industry, and we continue to add new solutions

## HED™ products

- High energy density NCA and NCM cathode materials
- Ni content ranging from 60% to >90%
- Already used in xEV applications today



## Ultra-high Ni

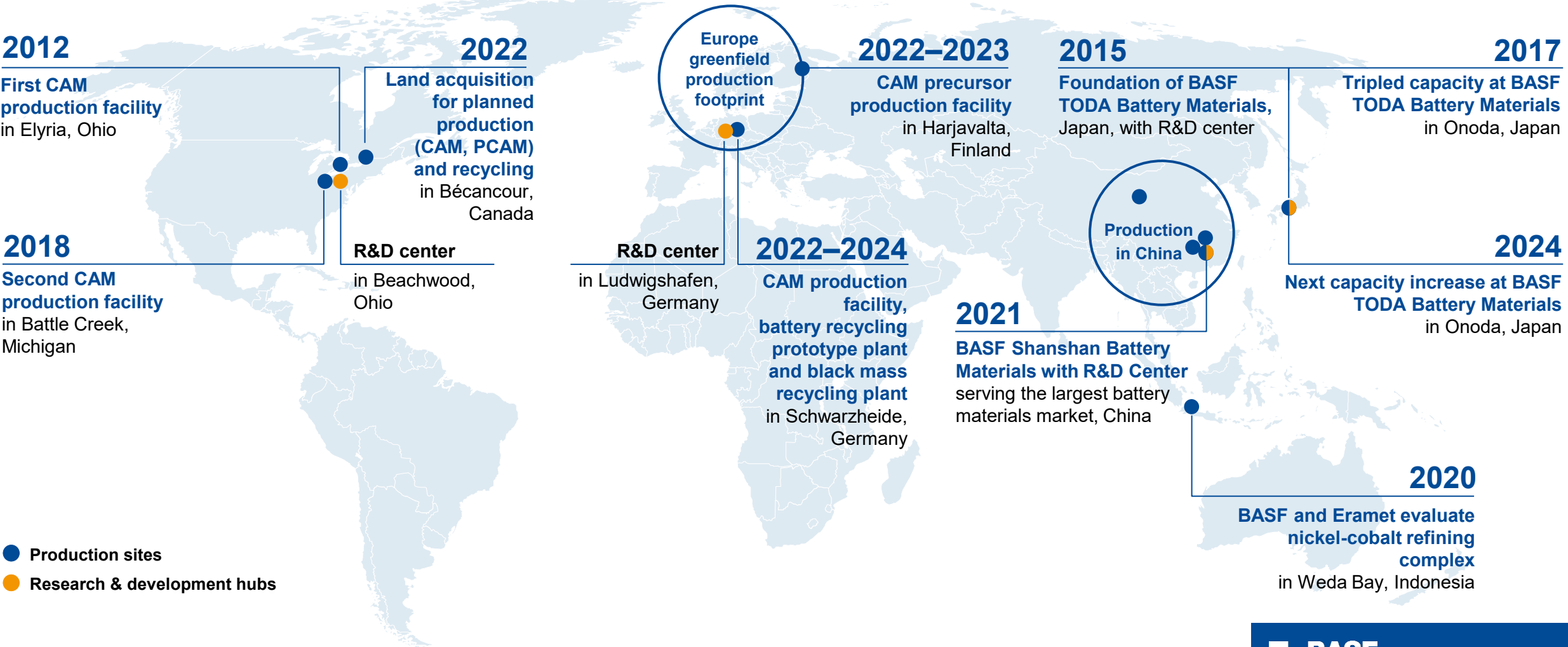
- Ultra-high Ni CAM,  $\geq 220$  Ah/kg
- Ni >90%, Co <5%
- Up to stabilized LNO
- Pushing boundaries for high-performance applications

## Co-free CAM

- Ni-rich NMx
- Over-lithiated Mn-rich, e.g., NCM-307
- Focus on lower cost and improved safety
- Candidate for mass market entry due to price advantage

Our technology toolbox offers customized solutions for all cell formats and provides a basis for innovations beyond classical lithium-ion batteries

# BASF has production assets and R&D hubs in close proximity to the most important BEV markets in every region



# The Battery Materials business will become a significant earnings contributor to the BASF Group

**>€1.5 billion sales**  
by 2023

**>€7 billion sales**  
by 2030

**>10%**

market share  
targeted

**>30%**

EBITDA bsi margin  
(excl. metals)

**~€3.5–4.5 billion**

capital expenditure  
2022–2030

- Continue to ramp up existing sales of the **CAM portfolio** and **secure further commercial outlets**
- Build on **customer proximity** with our **domestic production footprint** to meet customer needs
- Realize new business opportunities and further cost reductions with **continued product development**
- Utilize our broad knowledge of the industry to **support the ongoing transformation** of the sector



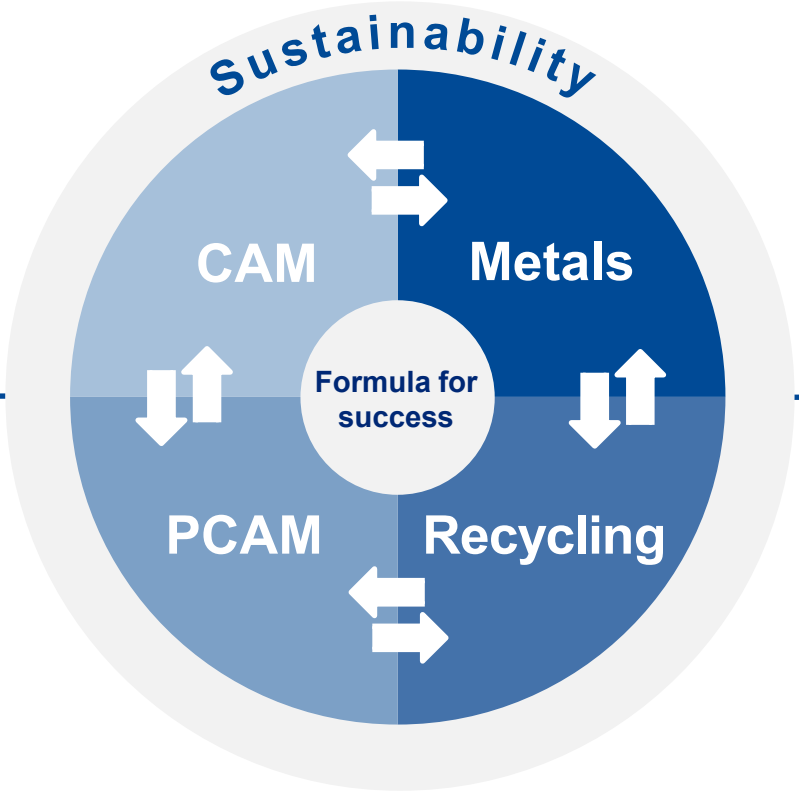
# BASF Battery Materials: Key takeaways

▪ Best-in-class CO<sub>2</sub> footprint

▪ Closing the loop

- Broad CAM product offering
- Strong IP position
- Extensive R&D capabilities

- Unique expertise in PCAM chemistry
- Make-or-buy optionality with a global production footprint



- Domestic sourcing and production
- Secure and sustainable supply

- Recycling capabilities
- Most CO<sub>2</sub> competitive source for metals

Battery Materials business is set to become one of the key growth engines in BASF's portfolio, establishing a leading and profitable position



We create chemistry