

# Aurubis AG

# Metals for Progress

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Hamburger Investorentage 2023

Rainer Verhoeven, CFO



# Our metals for an innovative world: Copper makes the circular economy possible

renewable energy



e-mobility



digitalization



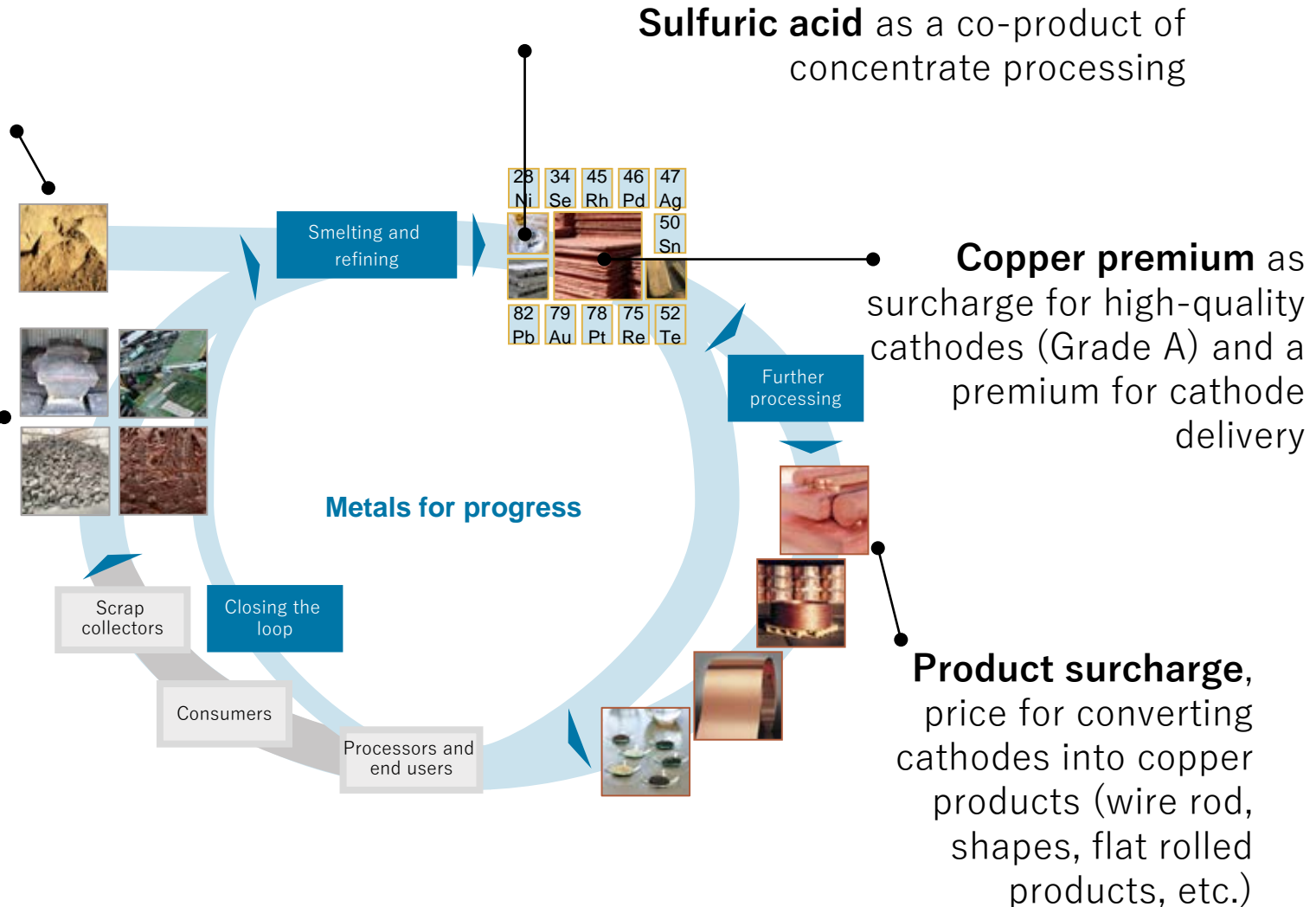
urbanization



# Closing the loop is part of Aurubis' integrated business model




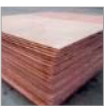




**Treatment and refining charges** for processing **copper concentrates** into cathodes (TC/RCs)


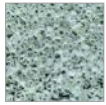


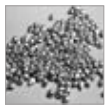



**Refining charges** for processing **copper scrap, blister, and recycling materials** into cathodes (RCs)





# Increased concentrate throughput and strong product demand

	FY 2021/22	Change vs. prior year
 Concentrate processing <sup>1</sup>	2,429,000 t	+8 %
 Copper scrap/ blister copper input <sup>2</sup>	540,000 t	-1 %
 Other recycling materials <sup>2</sup>	524,000 t	-3 %
 Cathode output	1,111,000 t	+0 %
 Continuous cast wire rod output	880,000 t	+1 %
 Copper shapes output	218,000 t	+17 %
 Flat rolled products + specialty wire output	176,000 t	-8 %
 Sulfuric acid output	2,296,000 t	+9 %

	FY 2021/22	Change vs. prior year
 Gold	47 t	-8 %
 Silver	911 t	-4 %
 Lead	44,016 t	+8 %
 Nickel	3,863 t	-1 %
 Tin	9,340 t	-7 %
 Zinc	13,917 t	-24 %
 Minor metals	867 t	-11 %
 Platinum group metals (PGMs)	9,514 kg	+9 %

<sup>1</sup> Custom smelter production <sup>2</sup> Prior-year figures adjusted

# Executive summary of first 9 months 2022/23

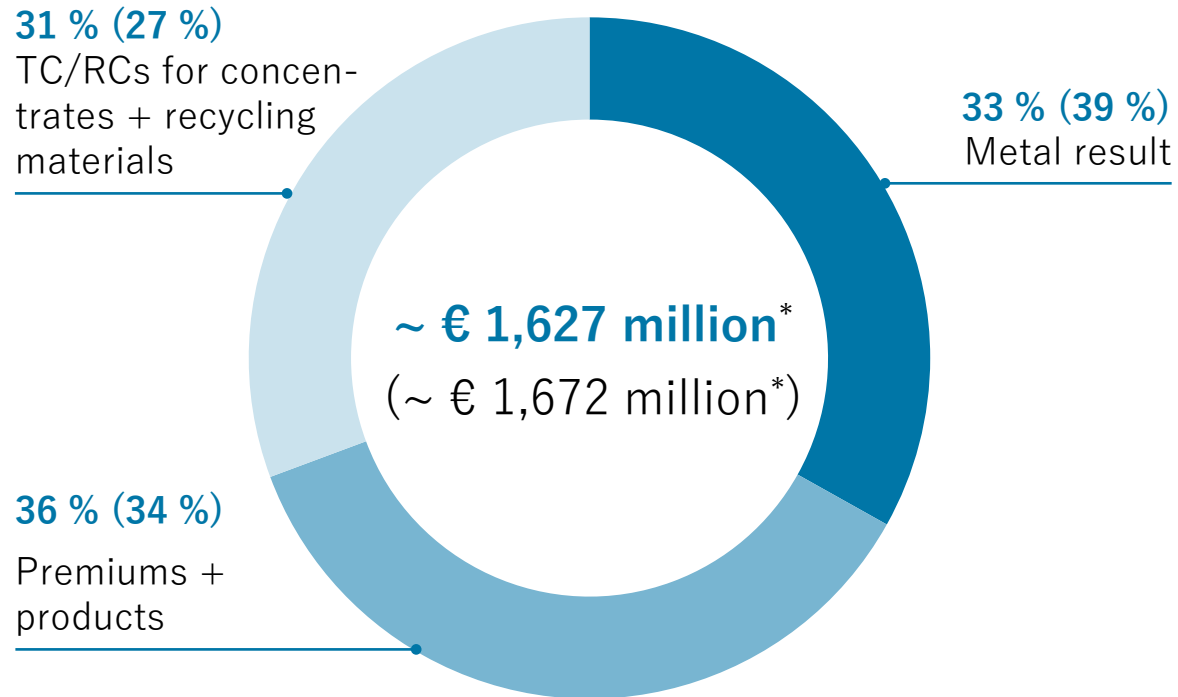
<p>Operating EBT 9M 2022/23 of <b>€ 406 million</b> (PY: € 426 million)<sup>1</sup></p>	<p>ROCE <b>15.1 %</b> (PY: 17.1 %)<sup>1</sup></p>	<p>Aurubis' positive development continues with strong nine-month figures for FY 2022/23 at the very high level of the previous year</p> <hr/> <p>Good concentrate markets; the increased cathode premium and high wire rod demand led to very good Q3 2022/23 figures, despite a lower metal result and lower sulfuric acid revenues. Lower energy costs due to a drop in gas and electricity prices, active energy management, and an insurance payout with positive impact on Q3 results</p> <hr/>
<p>Net cash flow <b>€ 73 million</b> (PY: € 11 million)<sup>1</sup></p>	<p>Forecast FY 2022/23 <b>€ 450–550 million</b> op. EBT</p>	<p>Operating ROCE lower due to temporarily high inventories and high investment payments for realizing our growth strategy, but still slightly above targeted level</p> <hr/> <p>Maintenance shutdown in Pirdop very well executed in budget and on time, ongoing stable operating performance at our primary smelter in Hamburg</p> <hr/> <p>Net cash flow improved with inventories remaining high due to the shutdown in Bulgaria – inventories will be released during Q4 of FY 2022/23</p>

<sup>1</sup> Prior-year figures adjusted

**» Aurubis confirms forecast range of € 450–550 million operating EBT for FY 2022/23**

# Gross margin at prior-year level

Breakdown of income components in the Aurubis Group 9M 2022/23 YTD (YTD prior-year figures)



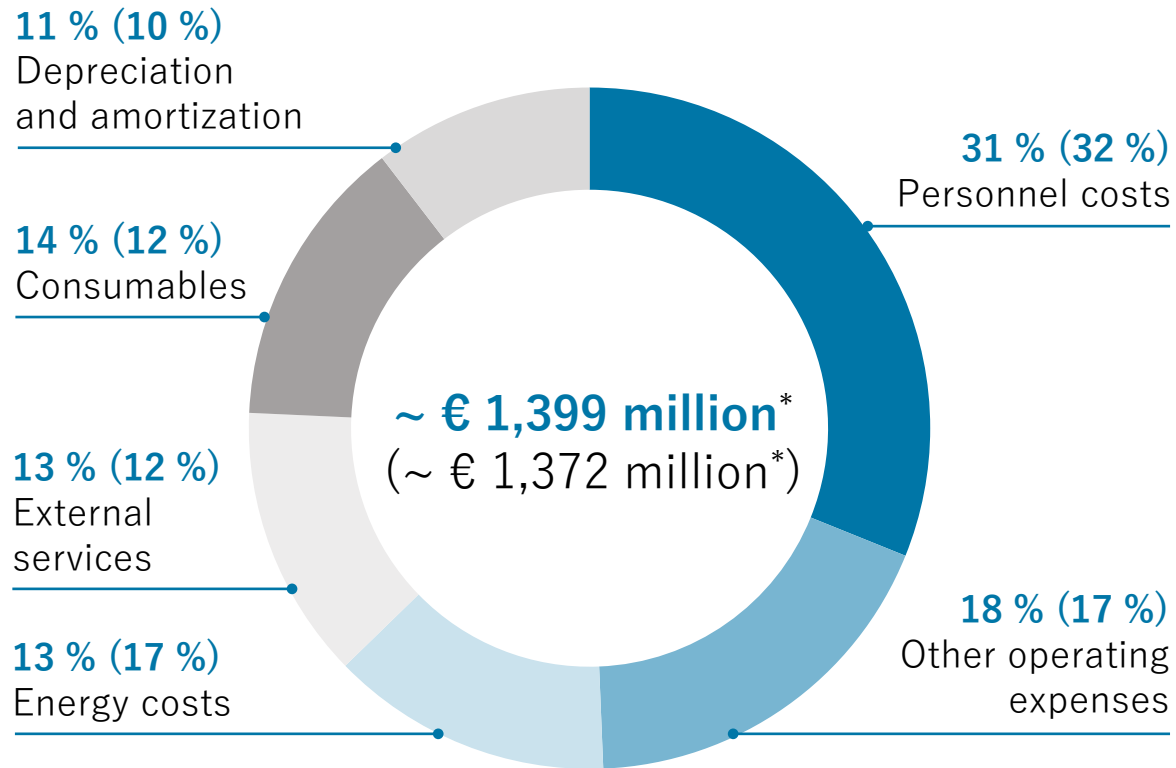
\* Gross margin = Total of the earnings components metal result, treatment and refining charges for concentrates + recycling materials, and premiums + products





# Overview of Group costs – energy costs reduced

Overview of cost/expense positions  
9M 2022/23 YTD (YTD prior-year figures)



\* Figures adjusted by energy compensation and hedging transactions



# FY 2022/23 guidance

## Our forecast range

Operating **EBT**  
between € **450** million  
and € **550** million

Operating **ROCE**  
between **14** %  
and **18** %

	Operating EBT in € million	Operating ROCE in %
Group	450–550	14–18
Multimetal Recycling	110–170	13–17
Custom Smelting & Products	390–450	18–22



# Our strategy builds on the sound mission of Aurubis and covers all relevant aspects to drive sustainable growth



## Industry Leadership in Sustainability

- Enablers**
- Digitalization, automation, and “Plant of the Future”
  - Strategic resource management, talent and personnel development



» It is our mission to responsibly transform raw materials into metals for an innovative and sustainable world.

# Growth strategy: CAPEX and EBITDA impact increase significantly

## Short term

Currently approved

Growth capex ~€ 1,150 million approved

**Key projects** Aurubis Richmond Module 1 & 2, Tankhouse Pirdop, CRH, BOB, ASPA, Industrial Heat II, PV 2&3 Pirdop

EBITDA of ~€ 260 million starting 2026/27, thereof ~€ 170 million from Aurubis Richmond

## Medium term

Medium-term planning (next 4 years)

Growth capex ~€ 280 million is included in the medium-term planning

EBITDA ~€ 70 million in addition from planned strategic projects

Additional strategic projects, e.g., the modular recycling system (€ 250–300 million capex)/battery recycling, not yet included but are actively pursued

## Long term

Until 2030

Ambition and scale of our long-term growth and project plans remain at a high level

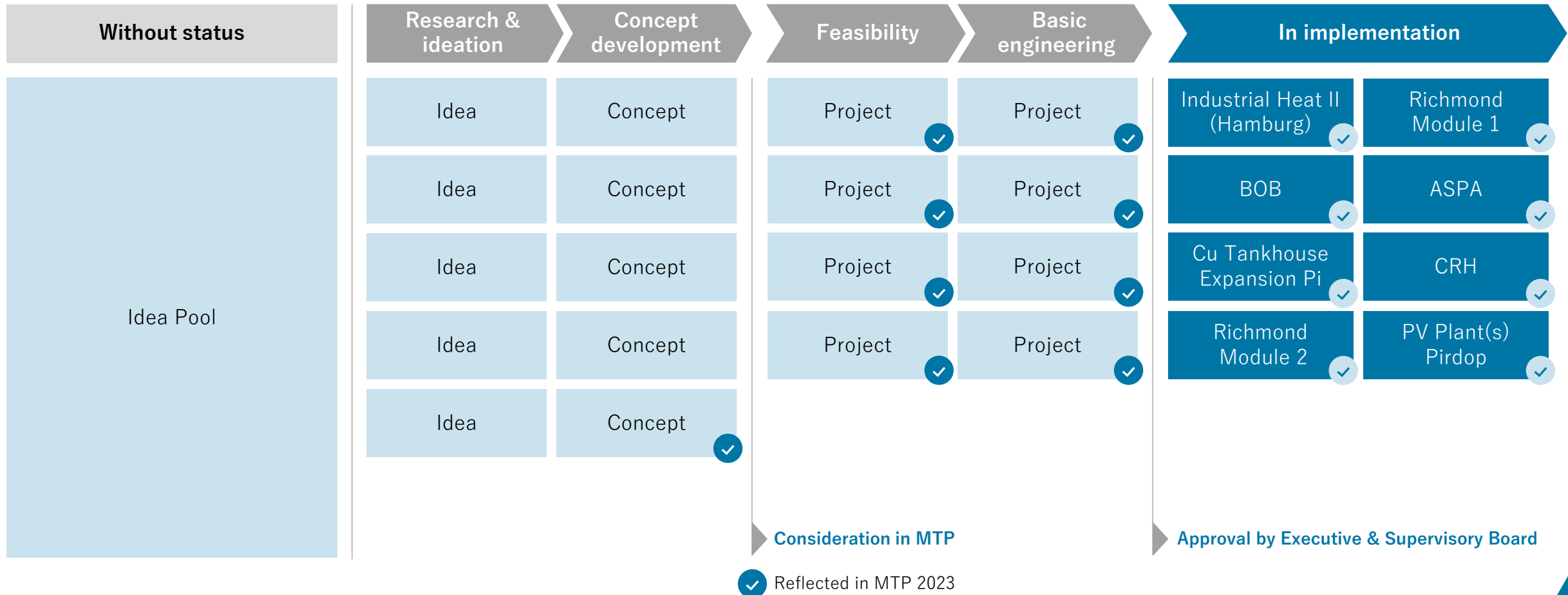
All capex projects are subject to a sustainability assessment (especially CO<sub>2</sub> contribution)

Battery recycling remains a priority growth area



# Strong pipeline features advanced projects included in medium-term planning, plus wealth of nascent concepts to drive sustainable growth

Strategic projects from development to implementation

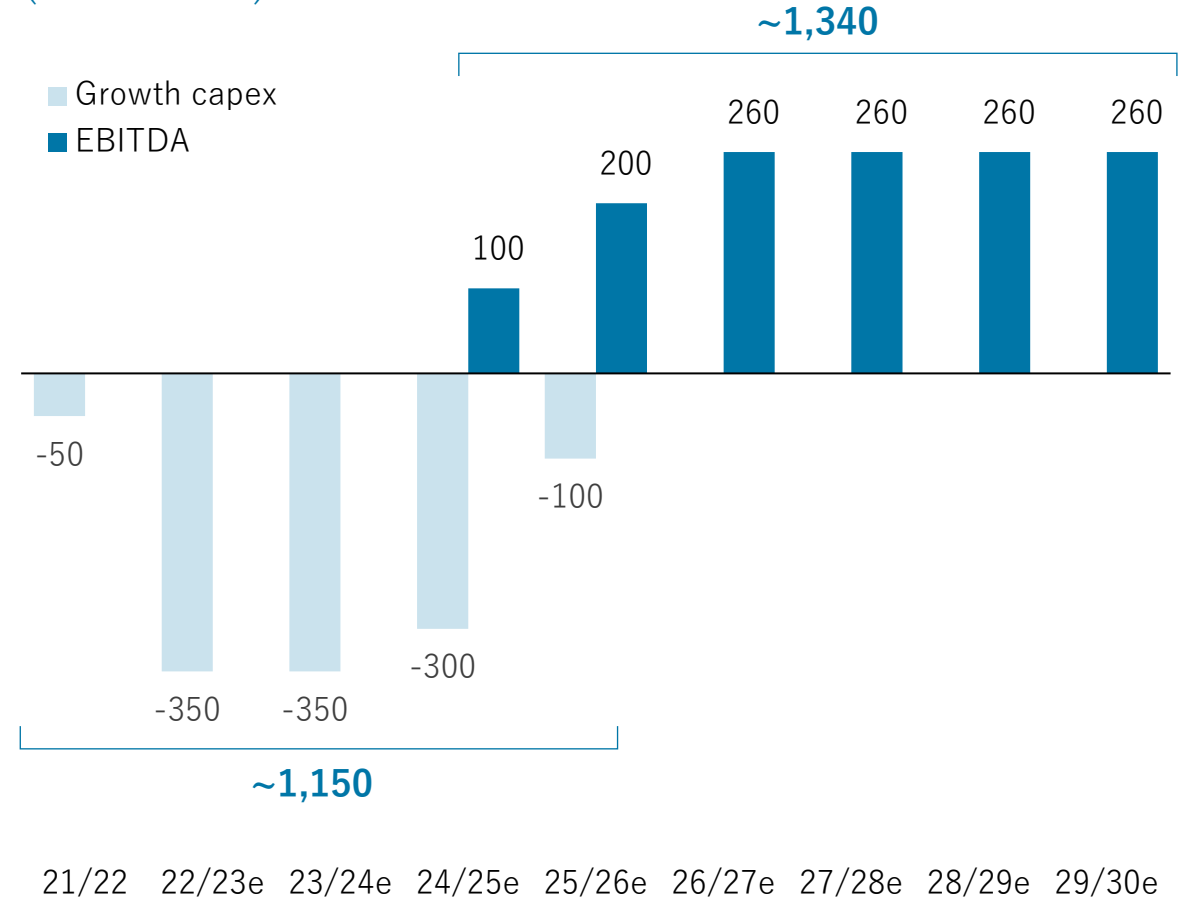


# Accumulated EBITDA to rapidly overcompensate investments

## Growth investments to be translated into profits

- Investing around € 1.1 billion in strategic growth options
- Rapid payback: accumulated EBITDA of € 1.3 billion overcompensates investments as soon as 2030
- Projects will be financed largely from own resources; current debt coverage offers additional headroom
- Balance sheet to become highly supportive for our EBITDA growth ambitions

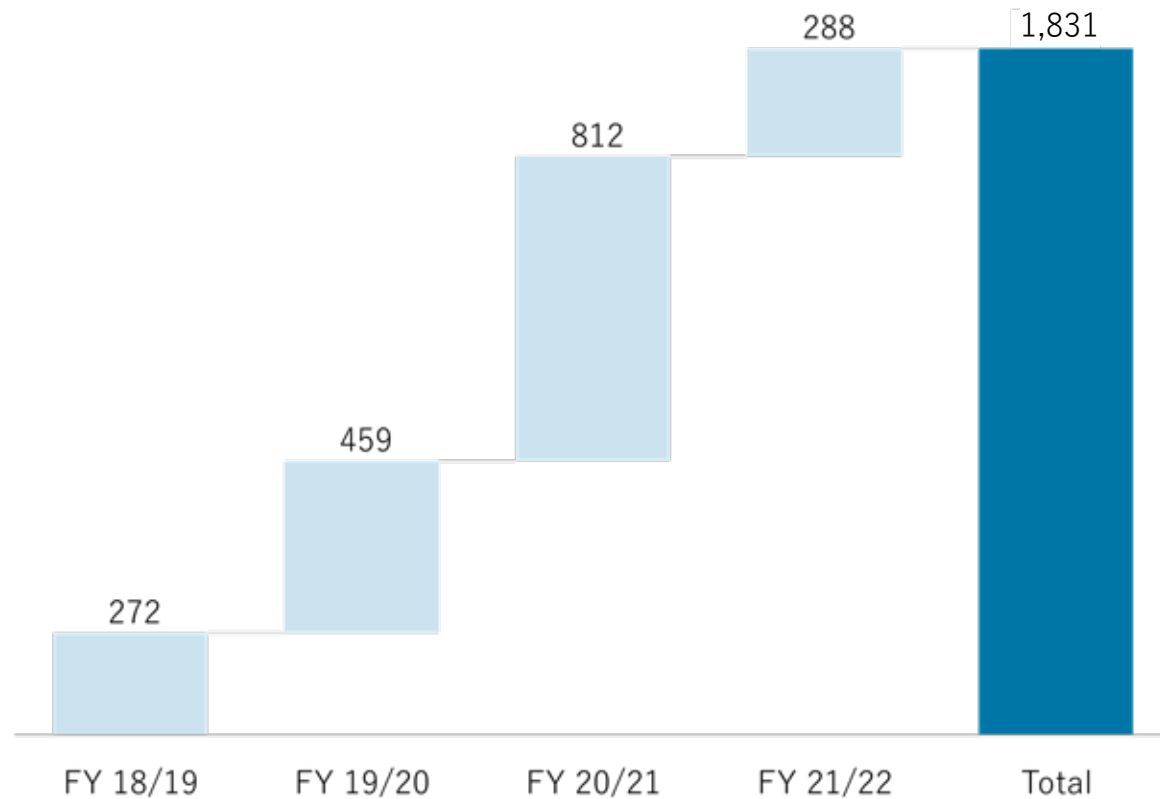
## Capex & EBITDA contribution from 8 strategic projects (in € million)



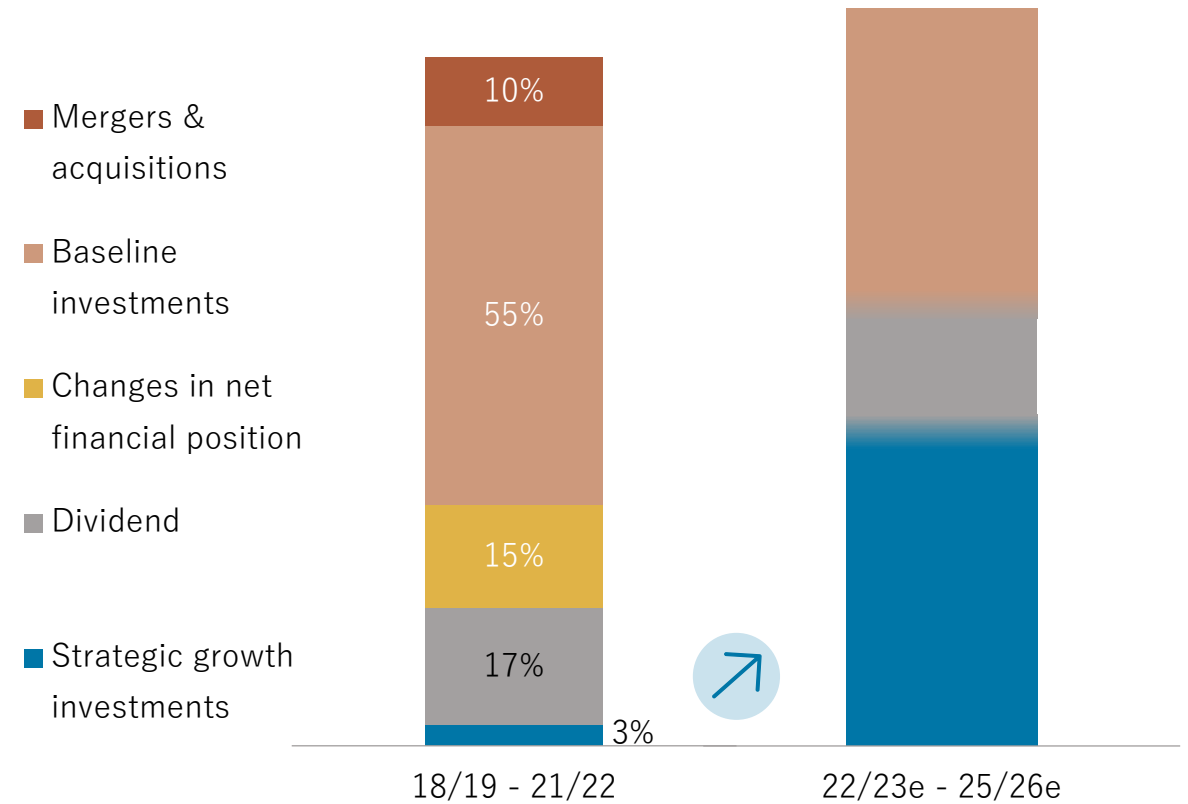


# Capital allocation will focus substantially on strategic growth investments

Net cash flow  
(in € million)



Capital allocation



# Growth options

## Aurubis Richmond, US – construction work is progressing





# Aurubis Richmond – the leading processor of electric and electronic recycling materials in the US



## Pursue Growth Options

Investment  
~ € 640 million

EBITDA p.a.

~ € 80 million  
(by 2025/26)

~ € 170 million  
(by 2026/27)

Aurubis Richmond complements and expands our international integrated smelter network with a highly attractive investment in a promising growth market.

The total investment includes additional infrastructure investments and inflation.

Aurubis Richmond establishes us as the front-runner in the US recycling market – tied directly to our strength, innovative expertise, industry-leading metallurgical processes and flexible applications.

With this, Aurubis will become the leading processor of electrical and electronic scrap in the US, by doubling the throughput capacity and output.

In total ~200 new jobs.

**Start of production**  
following ramp-up phase

Module 1: **2024**  
Module 2: **2026**

~ **180,000 t**  
input material

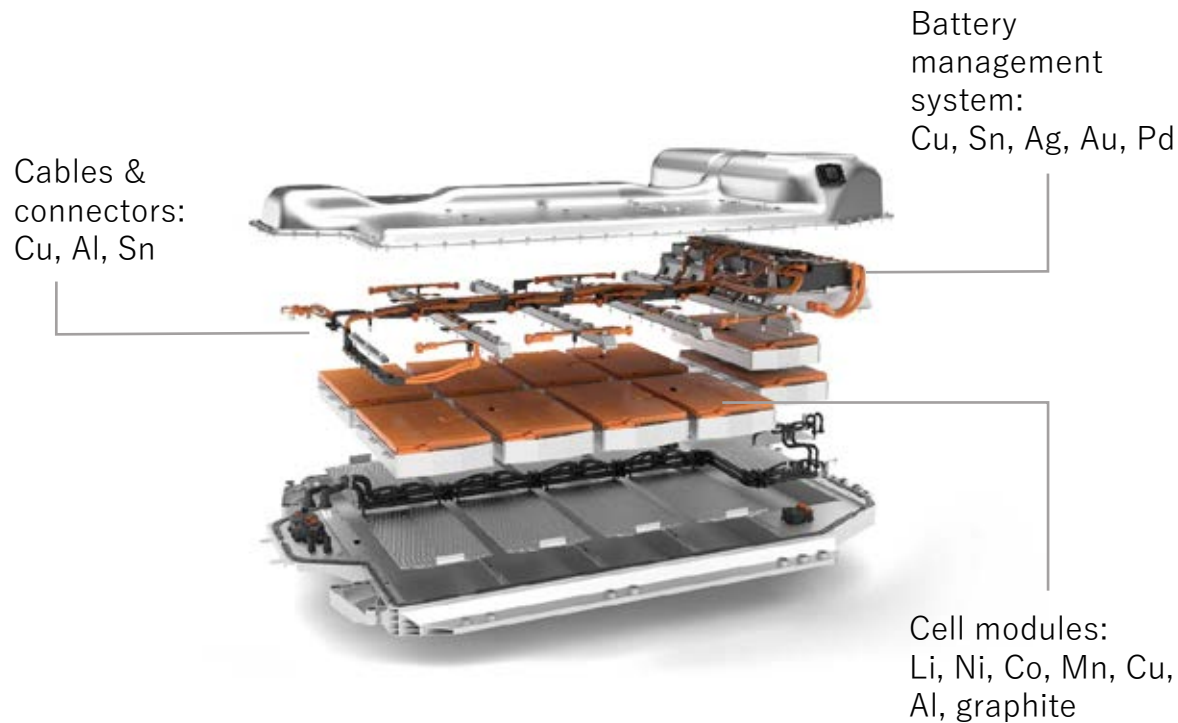
~ **70,000 t**  
blister copper output



**Project strengthens the circular economy and underlines Aurubis' ambition to strengthen and expand our position as the most efficient integrated smelter network worldwide**

# Lithium-ion batteries – exceptional value hidden in complex products, complex recycling material

Batteries are complex scraps that are of huge value

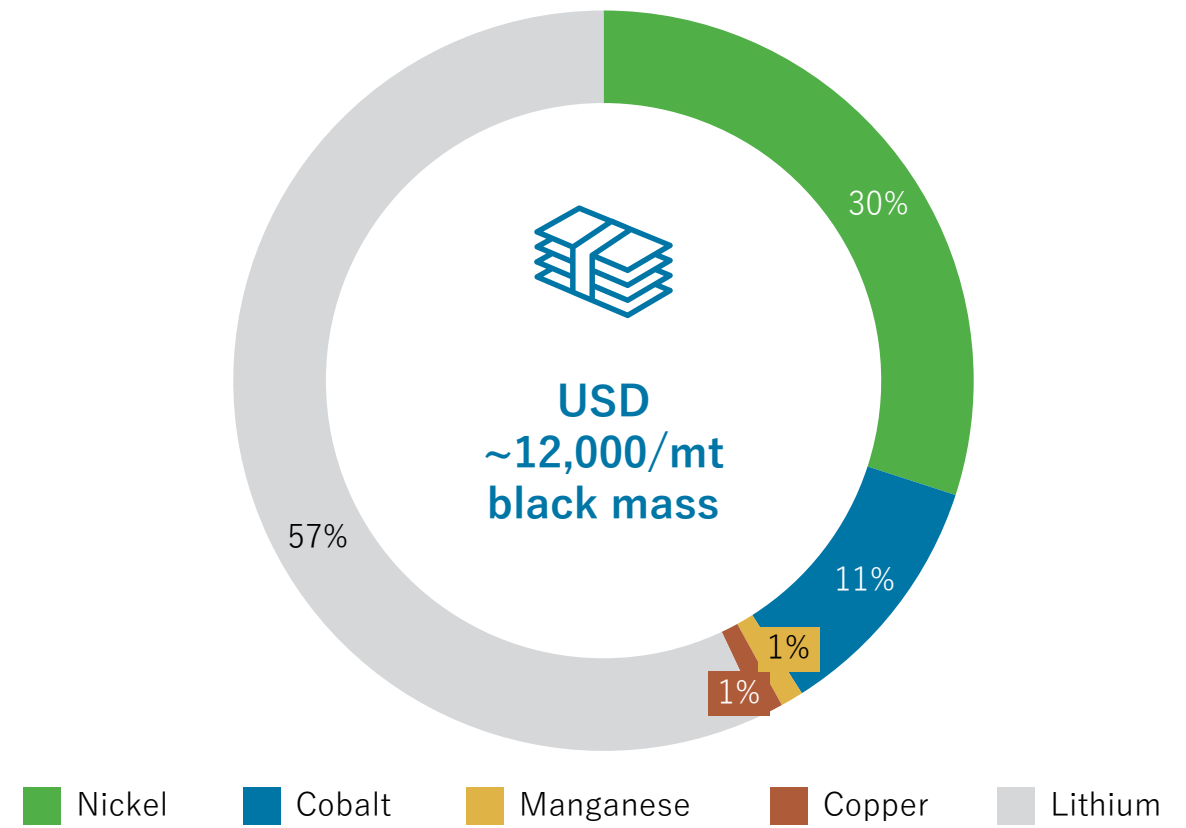


➤ Average black mass content: ~40 %

Source: BMW Group

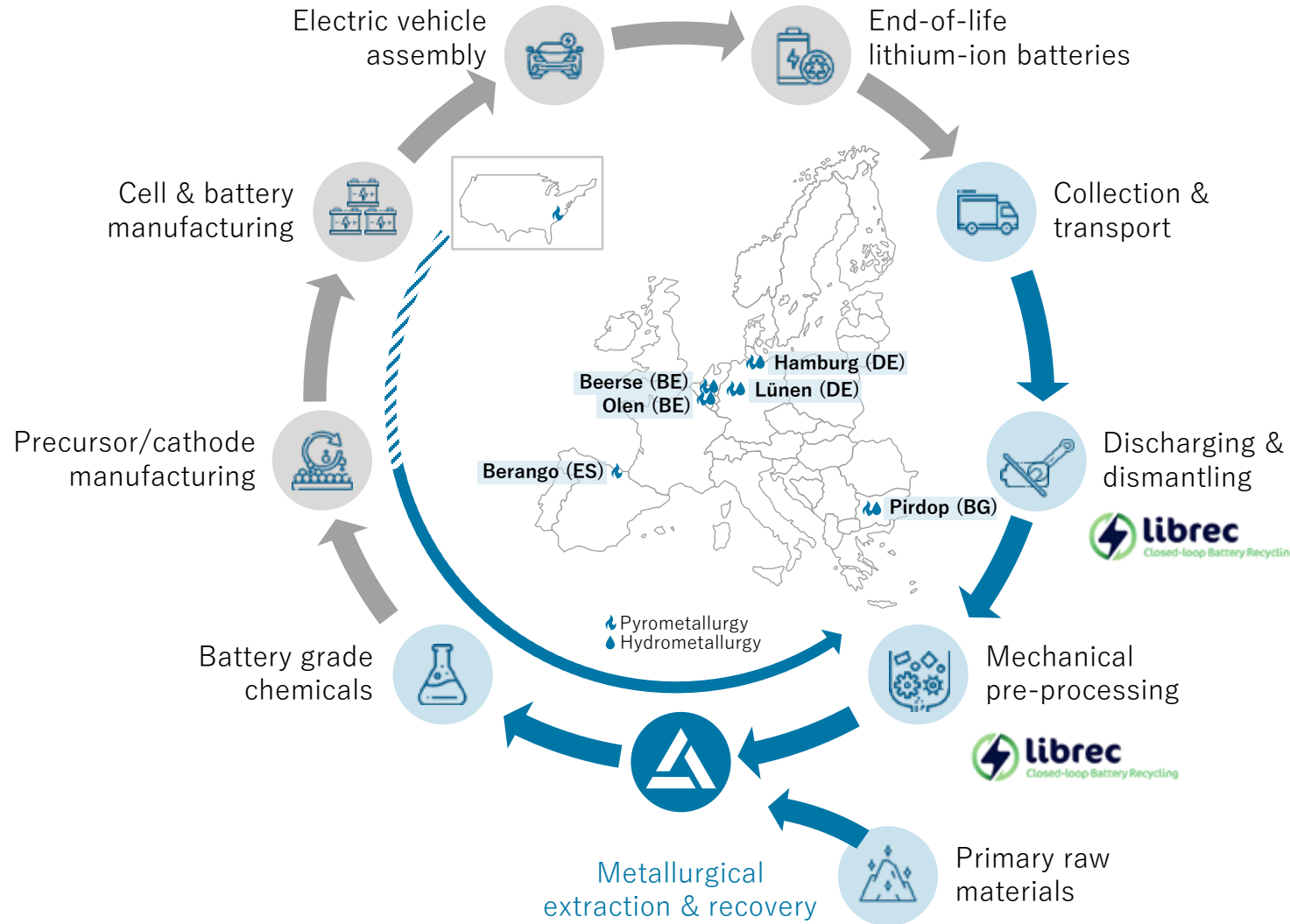
Aurubis / Hamburger Investorentag 2023

As the metal value in black mass is very high, capabilities to recover the value are essential



Source: Aurubis, Roland Berger, LME

# Our sweet spot in the battery recycling value chain is based on Aurubis' core expertise



We are developing a fully-fledged battery recycling supply and value chain

First steps taken with Librec, a specialist company in Switzerland, to optimize metallurgy vis-à-vis pretreatment

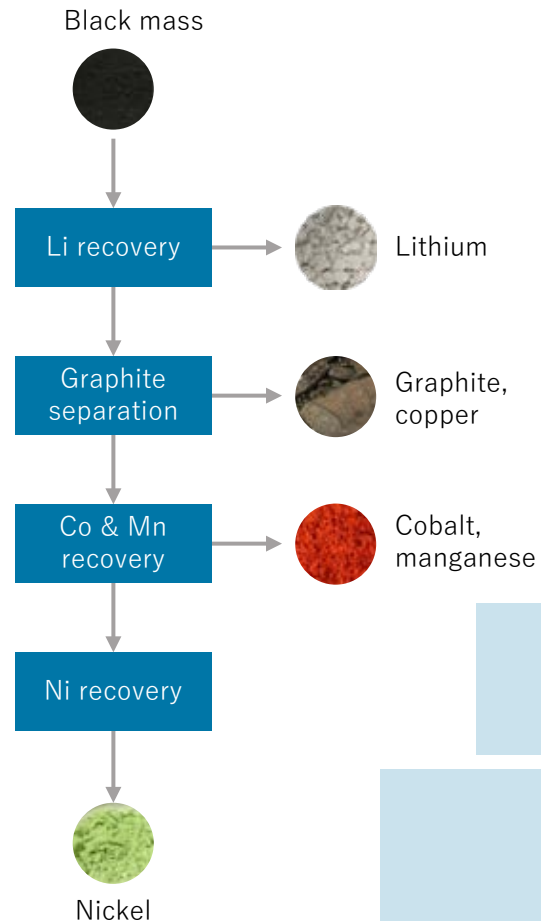
Further existing partners with core expertise in recycling to cover the production of black mass

Aurubis' integrated smelter network offers unique benefits

Downstream: intensive partnership discussions with experts in chemicals production to close the loop in battery metals



# Our innovative process for black mass leverages capabilities of our integrated smelter network



## Benefits of the unique Aurubis process

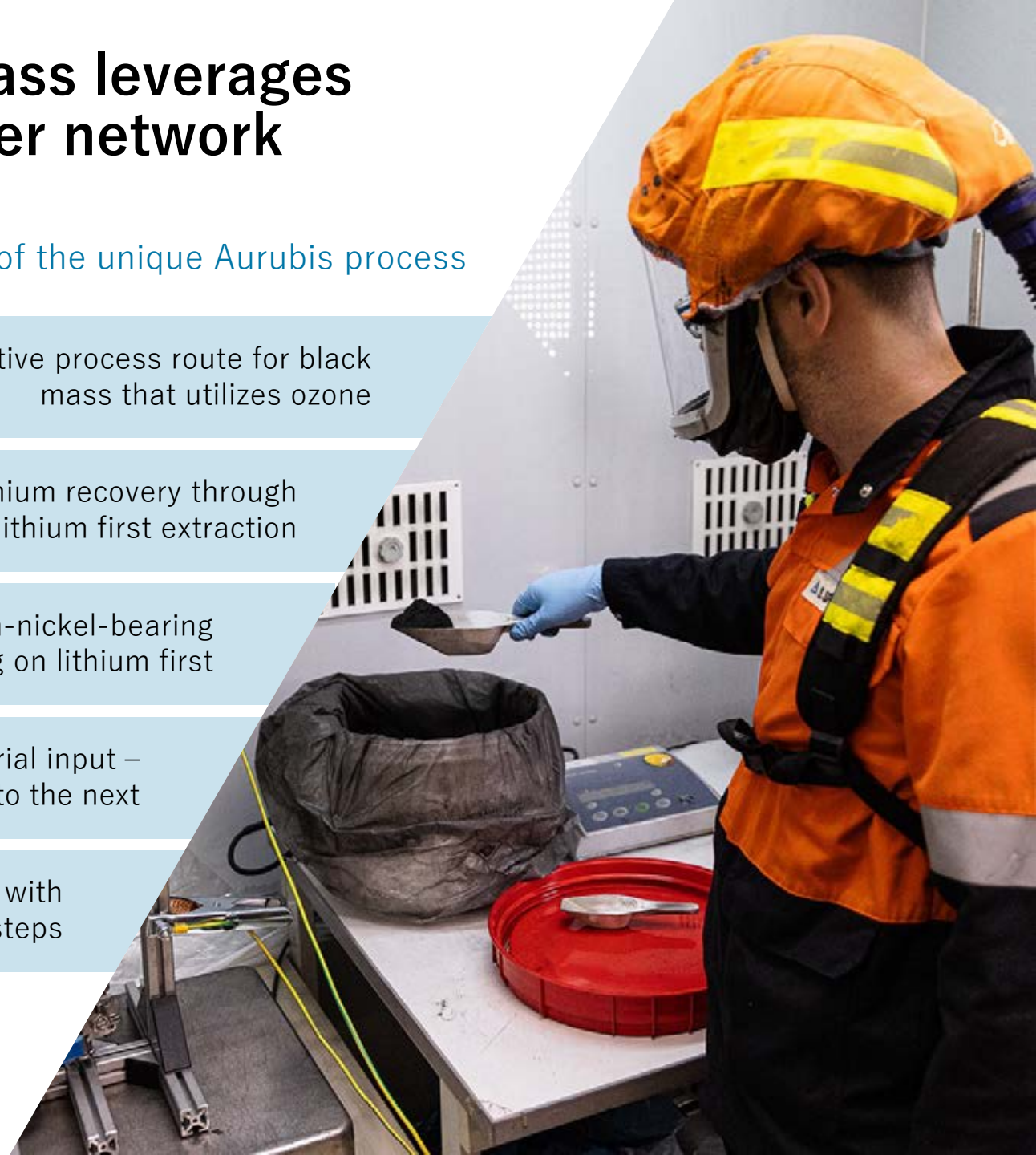
Innovative process route for black mass that utilizes ozone

High lithium recovery through lithium first extraction

Ability to process non-nickel-bearing black mass by focusing on lithium first

Flexibility regarding raw material input – no recycling material is identical to the next

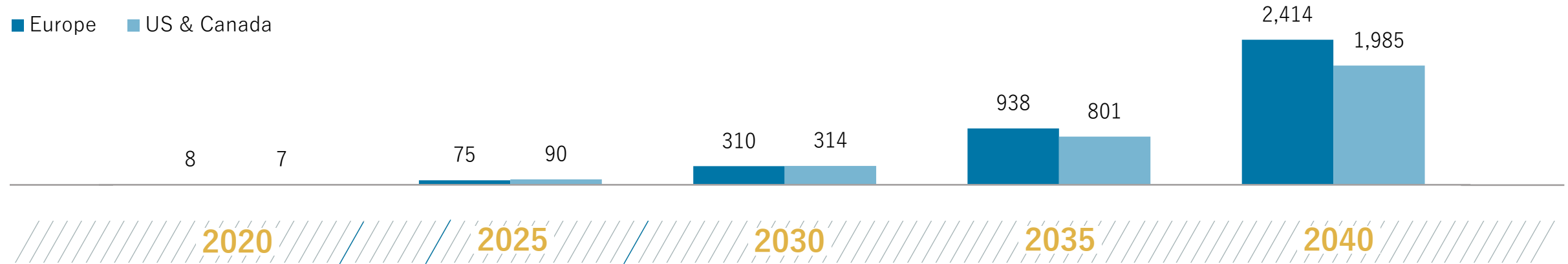
Modularity – compatible with further refining steps



# In line with projected market growth, Aurubis could enter the commercial market in the second half of this decade

Regional supply of black mass for recycling (in kt)

■ Europe ■ US & Canada



2020

2025

2030

2035

2040

Further pilot test work campaigns (pilot & demo)

Engineering & construction

Commissioning & operation

Feasibility study

First commercial activities with demo plant in 2024

Start of commissioning commercial plant in 2026/27

Criteria for site selection of commercial plant determined; site selection process is underway as we speak

Demo plant will already deliver output on a small commercial scale, enabling build-up of market know-how and reputation

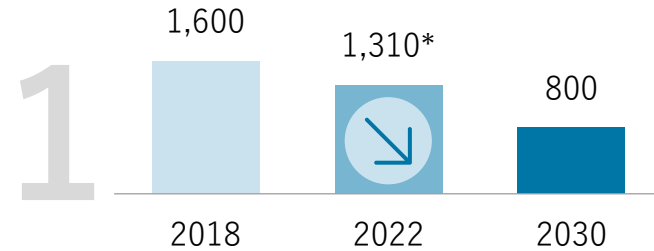
Industrial scale commercialization foreseen for 2026/27

Source: Rhomotion, Q2 2023

# Our KPIs underline our sustainability ambitions and demonstrate momentum

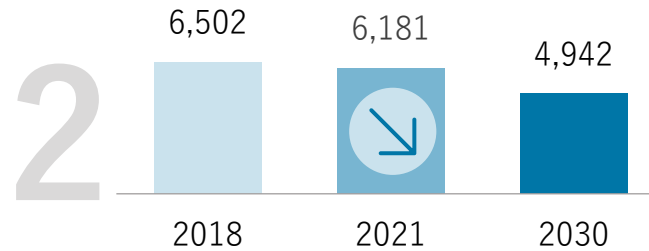


Absolute Scope 1+2 CO<sub>2</sub> emissions  
(in kt)

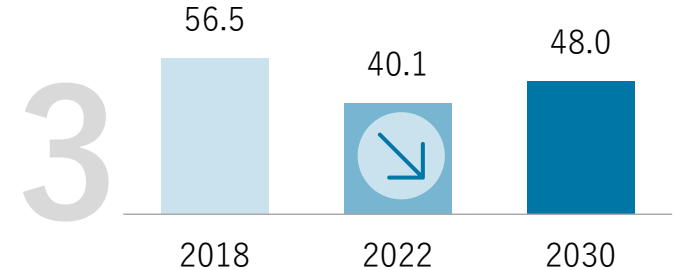


\* Preliminary figures

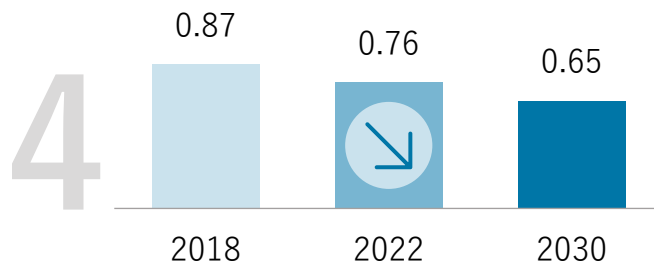
Scope 3 CO<sub>2</sub> emissions  
(in kt)<sup>1</sup>



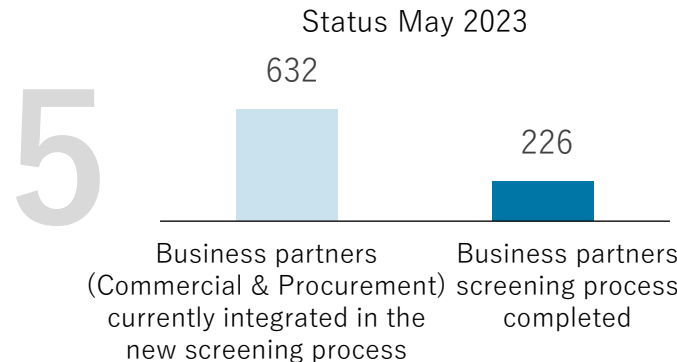
Air emissions (dust)  
(in g per t of multimetal Cu equivalent)<sup>2</sup>



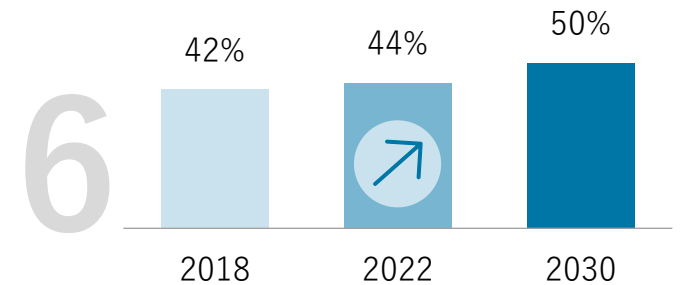
Metal emissions to water  
(in g per t of multimetal Cu equivalent)<sup>2</sup>



Supply chain integrity  
For all identified High Risk Business Partners we implemented action plans. This has reduced our Business Partner risk.<sup>3</sup>



Recycling content (Cu)  
Recycling share of Cu cathodes (in %)



<sup>1</sup> Assumed steady copper cathode production until target year (physical intensity target)

<sup>2</sup> Multimetal Cu equivalent: total metal produced at Aurubis smelters (Cu, Zn, Ni, Pb, Sn, Au, Pd, Pt, Ag, Rh, Se, Te) x weight factors

<sup>3</sup> Aurubis is introducing a revised and uniform Business Partner Screening system in FY 2022/23, in which we bundle the requirements of the various regulations, standards, and initiatives.



# Leading the way with life cycle assessments – and substantially lower carbon footprints than industry averages



## CO<sub>2</sub> footprint of Aurubis metals vs. global industry average

### Copper cathodes

in kg CO<sub>2</sub> eq./t Cu

Global industry average



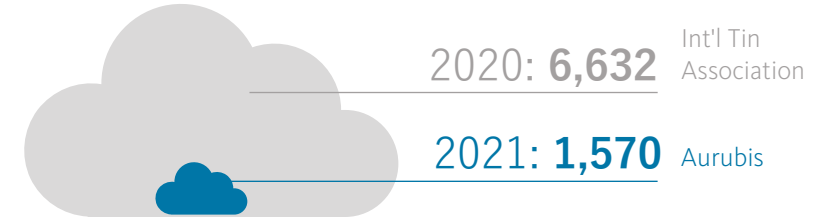
Remark: The environmental profiles have been verified by TÜV Nord Cert in accordance with DIN EN ISO 14040:2021 and DIN EN ISO 14044:2021.

Source: International Copper Association 2019, Aurubis LCA 2021

Aurubis

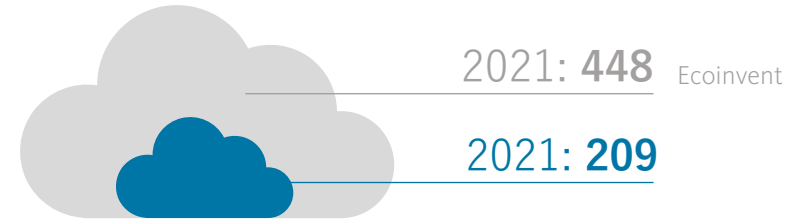
### Tin

in kg CO<sub>2</sub> eq./t



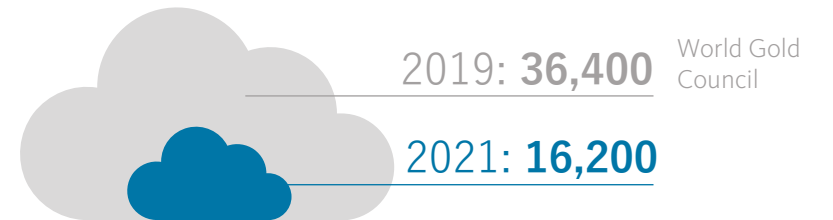
### Silver

in kg CO<sub>2</sub> eq./kg



### Gold

in kg CO<sub>2</sub> eq./kg



» Aurubis continuously pursues better energy efficiency: lowering costs, improving CO<sub>2</sub> footprint

# The Copper Mark certification demonstrates our leadership in sustainable production practices



The Copper Mark launched for copper producers in March 2020



Focus on steady improvement of the sector's production practices



Aurubis Olen certification expected shortly



Basis:  
UN SDGs & Risk Readiness Assessment



Joint Due Diligence Standard enables effective due diligence



Review of  
32 sustainability criteria



Aurubis Bulgaria, Hamburg, and Lünen already certified for meeting The Copper Mark's requirements



The copper value chain can be sustainable – promoting and driving this industry initiative demonstrates our responsibility and growing momentum for a more sustainable product.



RESPONSIBLY  
PRODUCED  
COPPER

# Thank you for your participation.

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For further questions, contact:  
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 **Aurubis**





# Your IR contacts

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# Aurubis at a glance

Based in [Hamburg](#), Aurubis AG develops its leading market position with a [responsible approach](#) to the [environment](#), [people](#), and [resources](#)



The company's main expertise is in optimally [processing concentrates](#) and [recycling raw materials](#) with complex qualities

[Metallurgical know-how](#), [state-of-the-art plant facilities](#), and extraordinarily [high environmental standards](#) for the sector make Aurubis an attractive partner for raw material suppliers



The company, which was founded in 1866 as [Norddeutsche Affinerie AG](#), is listed in the [MDAX](#) and produces more than [1 million t of copper cathodes](#) and various copper products from them with about [7,100 employees](#) worldwide

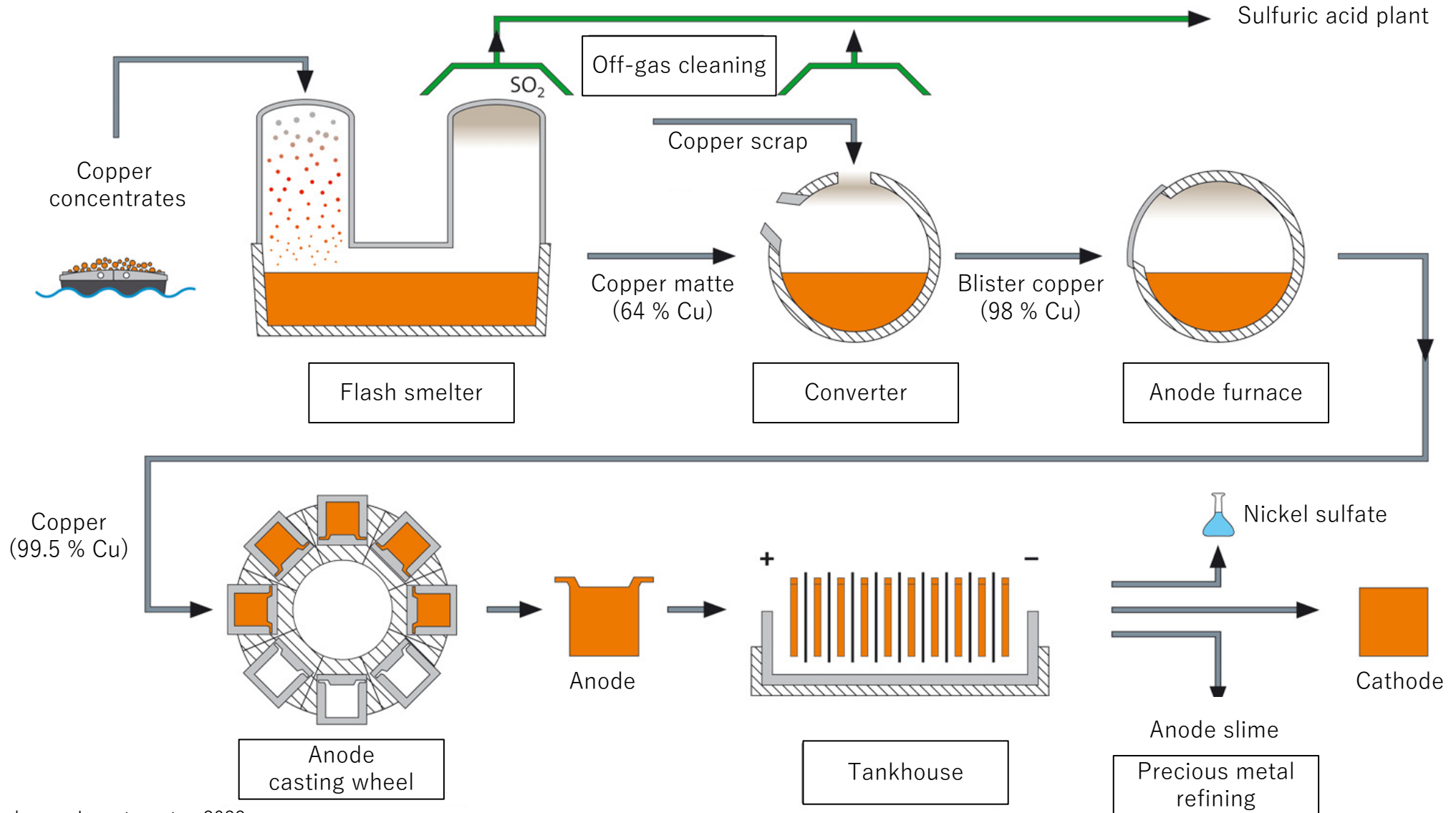


The Group is [active in more than 20 countries](#) and has production sites concentrated in [Europe](#) and [North America](#)



Aurubis is one of the world's leading producers of cathodes, rod, and flat rolled copper products

# Primary copper production process



# Disclaimer

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## Forward-looking statements

This document contains forward-looking statements that involve risks and uncertainties, including statements about Aurubis' plans, objectives, expectations, and intentions. Readers are cautioned that forward-looking statements include known and unknown risks and are subject to significant business, economic, and competitive uncertainties and contingencies, many of which are beyond the control of Aurubis. Should one or more of these risks, uncertainties, or contingencies materialize, or should any underlying assumptions prove incorrect, actual results could vary materially from those anticipated, expected, estimated, or projected.



# Back-Up

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# Aurubis' strong financial position enables our growth strategy

		9M 2022/23	9M 2021/22 <sup>3</sup>	Target
ROCE <sup>1</sup>	%	15.1	17.1	15.0
Equity ratio (equity/total assets)	%	57.5	54.0	> 40.0
Debt coverage <sup>2</sup>		0.0	-0.2	< 3.0
Additional KPIs				
		9M 2022/23	9M 2021/22	
Capital expenditure	€m	374	225	
Capital employed (balance sheet date)	€m	3,457	2,980	
Net cash flow	€m	73	11	

<sup>1</sup> Rolling EBIT last 4 quarters

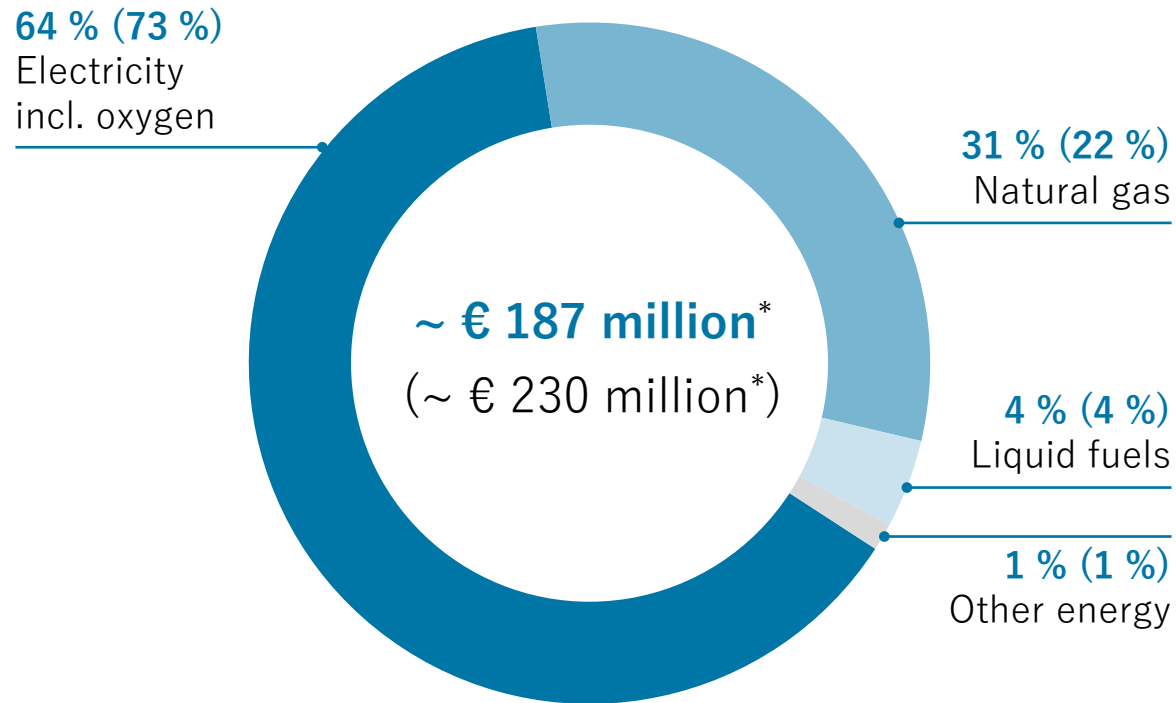
<sup>2</sup> Net financial liabilities/rolling EBITDA last 4 quarters

<sup>3</sup> Prior-year figures adjusted



# Aurubis continues to manage energy costs

Breakdown of energy costs 9M 2022/23  
(YTD prior-year figures)



\* Figures adjusted by energy compensation and hedging transactions

Electricity incl. oxygen consumption in the Aurubis Group: approx. 1.81\* TWh (1.94)

CO<sub>2</sub> emissions of 1.31\* million t (1.61)

- 0.52\* million t of direct emissions (0.56)
- 0.78\* million t of indirect emissions related to purchased electricity; market-based (1.05)

Key influencing factors for the reduction of energy costs in 9M 2022/23:

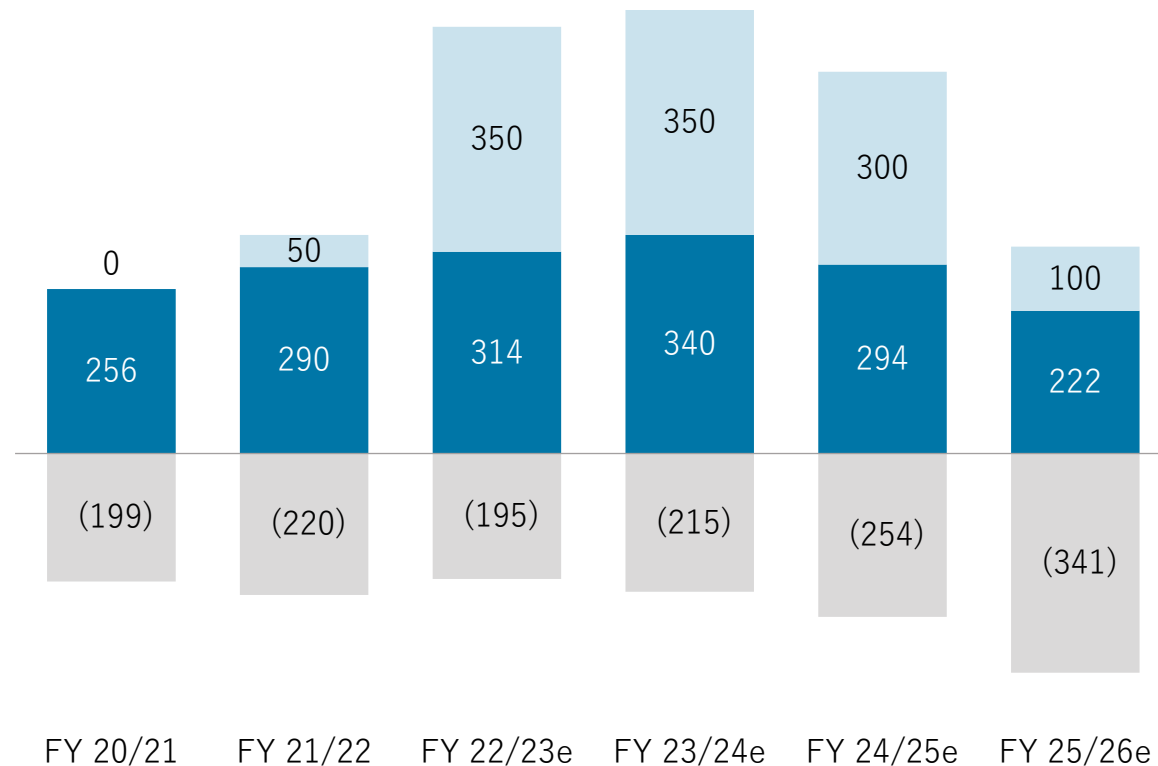
- Active energy management/hedging transactions
- Electricity price cap in Bulgaria
- Indirect CO<sub>2</sub> compensation (annual payment)

\* Preliminary figures

# Outflows from current project pipeline expected to peak in 2023/24

## Capex planning broken down into baseline and strategic (in € million)

■ Baseline capex   ■ Strategic capex   ■ Depreciation



## Investment horizon of the Group

- The planned maintenance schedule of the two primary smelters in Hamburg and Pirdop will change from planned maintenance every two years to a three-year cycle from FY 2025/26 onwards
- Depreciation will start substantially impacting the P&L after FY 2025/26, but all projects are accretive to P&L
- Total fixed assets expected to reach around € 3.5 billion by 2025/26