

# Aurubis AG

# Metals for Progress

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Virtual Roadshow  
ODDO BHF

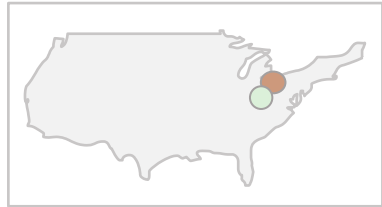
May 16th, 2024

 **Aurubis**

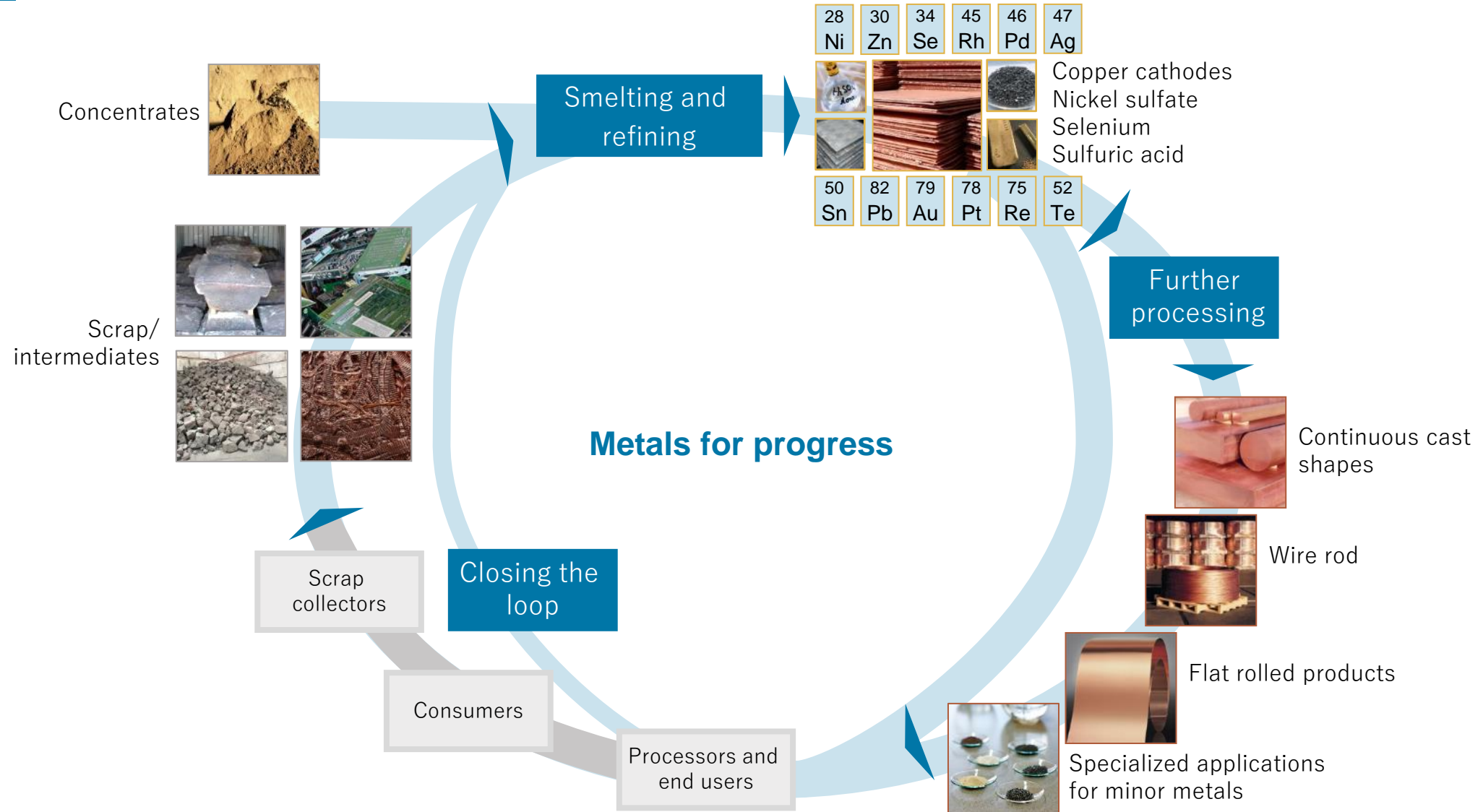


# Aurubis production sites

- Headquarters
- Primary Copper
- Recycling/Precious Metals
- Copper Products



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



# Lower concentrate throughput due to shutdown with strong demand for wire rod

	FY 2022/23	Change vs. prior year		FY 2022/23	Change vs. prior year
 Concentrate processing <sup>1</sup>	2,319,000 t	-5 %	 Gold	49 t	+4 %
 Copper scrap/blister copper input <sup>2</sup>	515,000 t	-5 %	 Silver	921 t	+1 %
 Other recycling materials <sup>2</sup>	565,000 t	+8 %	 Lead	38,088 t	-13 %
 Cathode output	1,109,000 t	0 %	 Nickel	3,488 t	-10 %
 Continuous cast wire rod output	876,000 t	-1 %	 Tin	7,858 t	-16 %
 Copper shapes output	178,000 t	-18 %	 Zinc	13,791 t	-1 %
 Flat rolled products + specialty wire output <sup>3</sup>	133,000 t	-24 %	 Minor metals	875 t	+1 %
 Sulfuric acid output	2,158,000 t	-6 %	 Platinum group metals (PGMs)	9,858 kg	+4 %

<sup>1</sup> Custom smelter production <sup>2</sup> Prior-year figures adjusted <sup>3</sup> Prior-year figures include FRP sites that have been sold

# Executive summary of first 6 months 2023/24

Operating EBT  
6M 2023/24 of  
**€ 243 million**  
(PY: € 239 million<sup>1</sup>)

Operating ROCE  
**10.0 %**  
(PY: 14.1 %)

Aurubis' positive development continued in the second quarter 2023/24

Operating EBT positively influenced by increased TC/RCs for concentrates, a higher metal result, a significant rise in the Aurubis copper premium coupled with ongoing high demand for wire rod and lower energy costs, counteracted by decreased sulfuric acid revenues, lower income from refining charges, and higher costs.

Prior-year figures restated due to the financial impact of the criminal activities

Net cash flow  
**€ 5 million**  
(PY: € 19 million)

Confirmed forecast  
range for FY 2023/24  
**€ 380–480 million**  
op. EBT

Strong operating performance at our smelter in Hamburg

ROCE (rolling EBIT last four quarters) reduced because of the negative closing quarter of the previous year and ongoing investment activity

Net cash flow low due to high payments for the build-up of inventories in preparation for the shutdown in Hamburg

» We are confirming our forecast of **€ 380–480 million operating EBT for 2023/24**

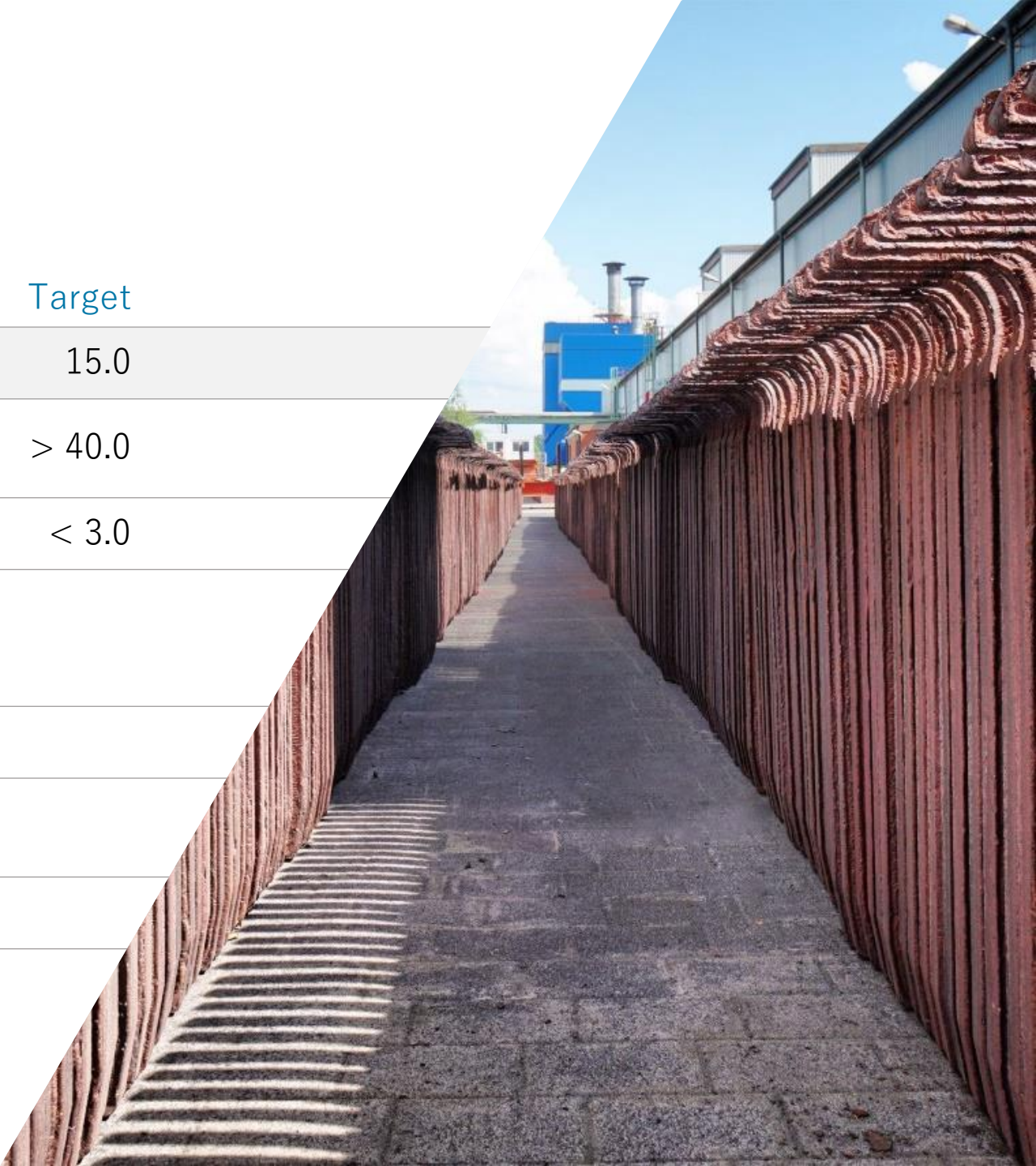
# Aurubis' financial position enables our growth strategy

		6M 2023/24	6M 2022/23	Target
ROCE <sup>1</sup>	%	<b>10.0</b>	<b>14.1</b> <sup>3</sup>	15.0
Equity ratio (equity / total assets)	%	54.2	56.6	> 40.0
Debt coverage <sup>2</sup>		0.2	-0.2	< 3.0
Additional KPIs				
		6M 2023/24	6M 2022/23	
Capital expenditure	€m	317	179	
Capital employed (balance sheet date)	€m	3,683	3,176	
Net cash flow	€m	5	19	

<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 restated.



# Gross margin for the Group in 2023/24 YTD

Breakdown of income components in the Aurubis Group 6M 2023/24 YTD (YTD prior-year figures)

**32 % (32 %)**

Treatment charges  
for concentrate +  
recycling input

**32 % (31 %)**  
Metal result

**~ € 1,105 million\***  
(~ € 1,069 million\*)

**36 % (37 %)**

Premiums +  
products

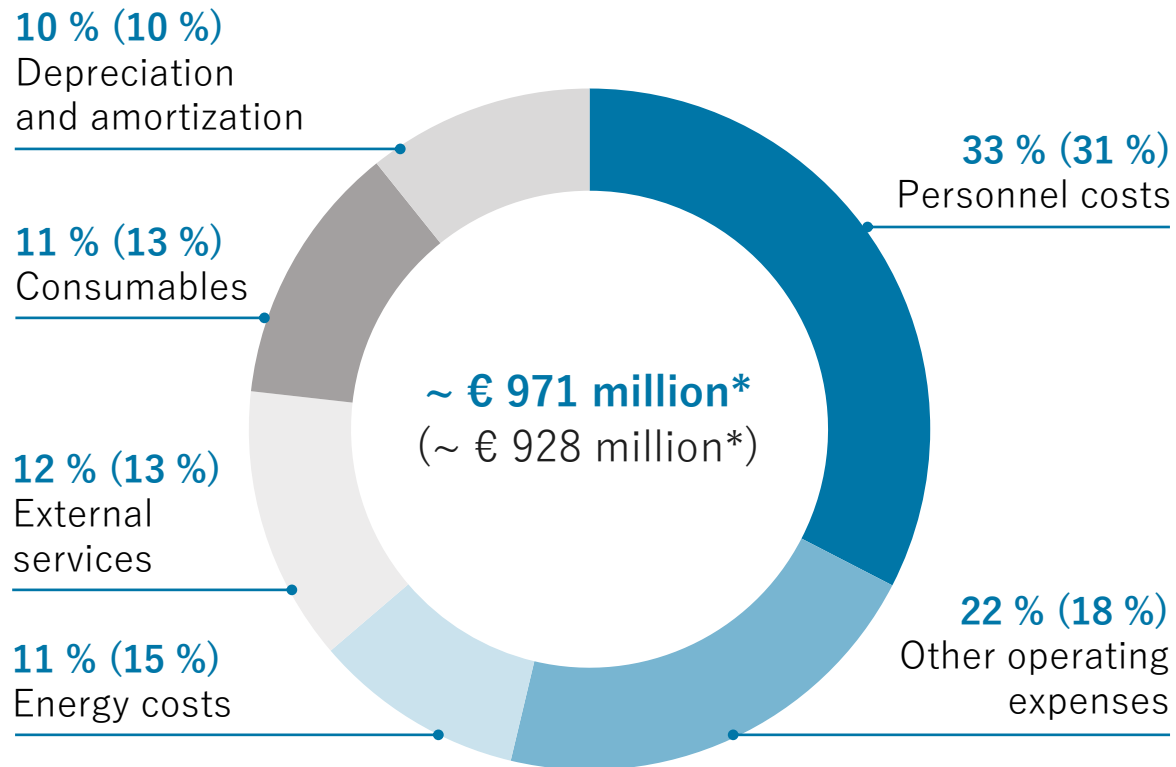
Prior-year figures restated.

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



# Overview of Group costs — further decrease in energy costs

Overview of cost/expense positions  
6M 2023/24 YTD (YTD prior-year figures)



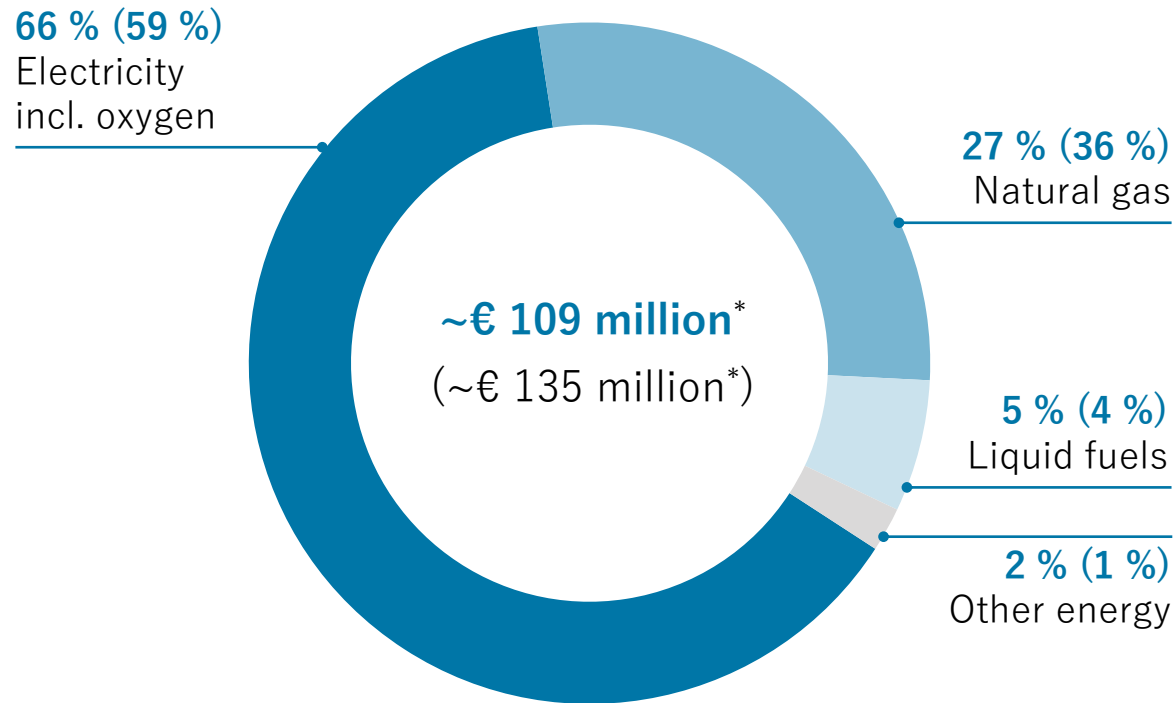
Prior-year figures restated.  
\* Figures adjusted by energy compensations and hedging transactions





# Significantly lower energy costs in the first HY

Breakdown of energy costs 6M 2023/24  
(YTD prior-year figures)



Key influencing factors for reduction of energy costs in 6M 2023/24:

- Active energy management/hedging transactions
- Indirect CO<sub>2</sub> compensation (annual payment)
- Lower commodity prices for electricity and natural gas

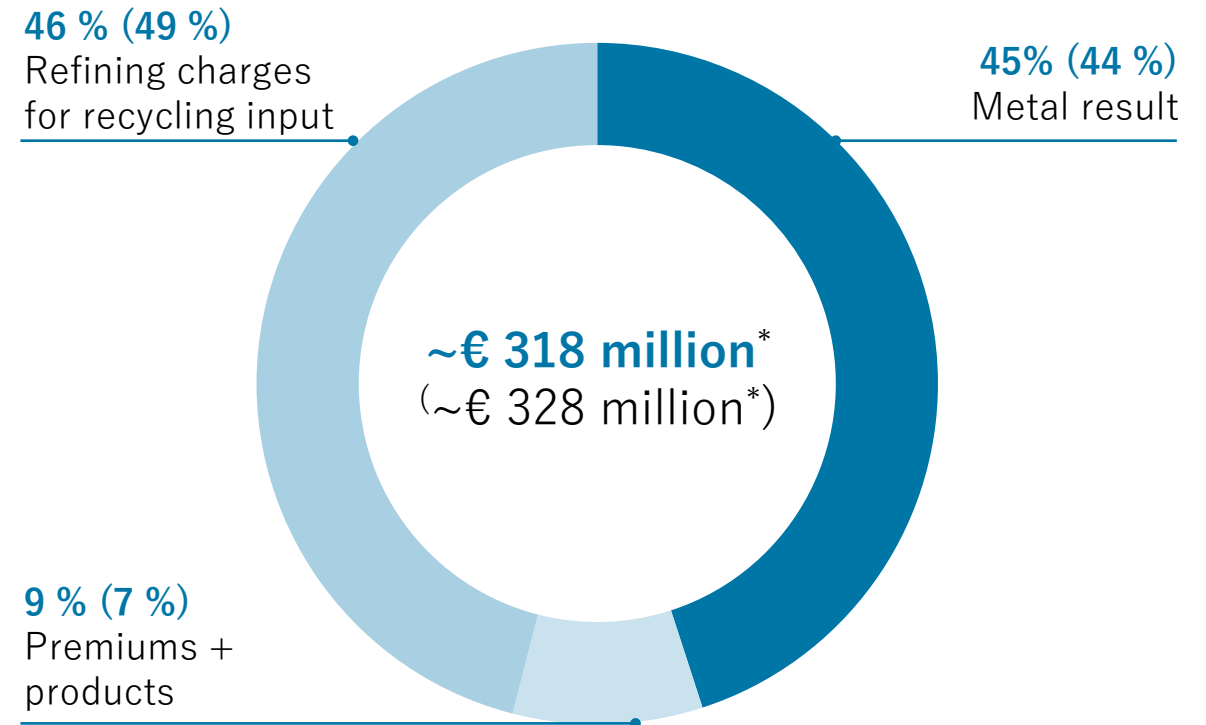
\* Figures adjusted by energy compensations and hedging transactions

# Multimetal Recycling segment

		6M	6M
Operating results		2023/24	2022/23
EBIT	€m	72	102
<b>EBT</b>	<b>€m</b>	<b>75</b>	<b>103</b>
<b>ROCE<sup>1</sup></b>	<b>%</b>	<b>10.3</b>	<b>15.5</b>
Quantities			
Copper scrap / blister copper	mt	144	173
Other recycling materials	mt	267	268
Cathodes	mt	253	263

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

Breakdown of income components in MMR segment  
6M 2023/24 YTD (YTD prior-year figures)



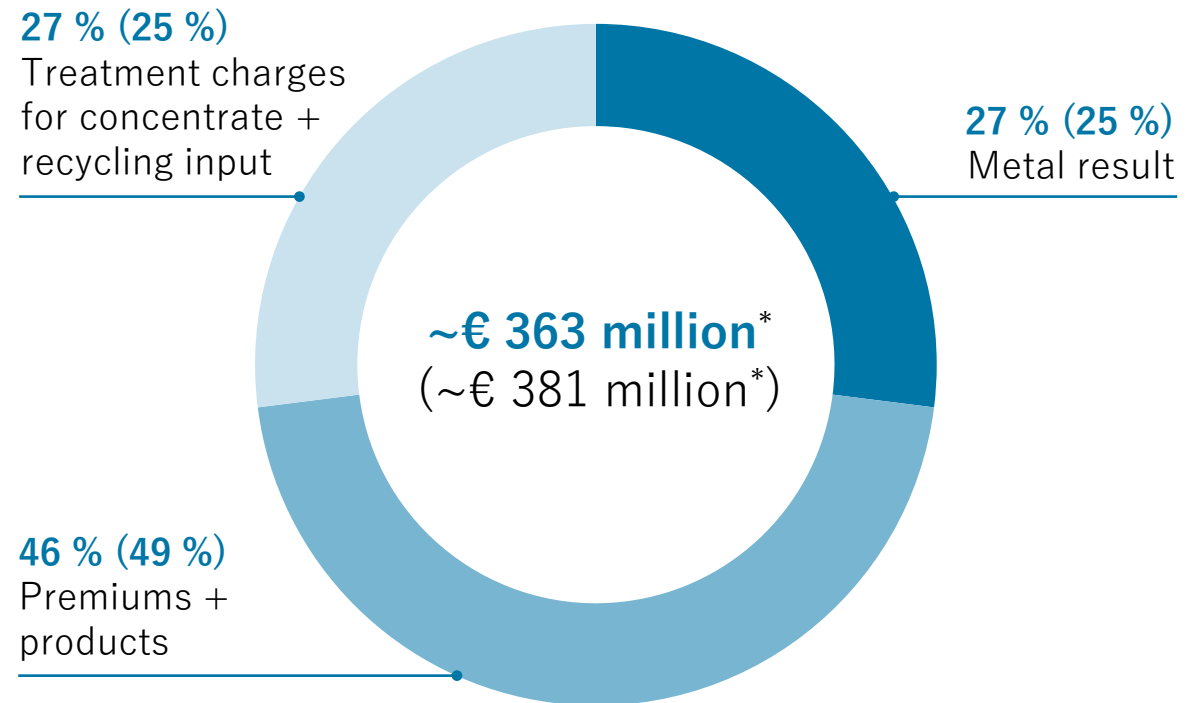
\* Gross margin = Total of earnings components metal result, refining charges for recycling input, and premiums + products

# Custom Smelting & Products segment

		6M	6M
Operating results		2023/24	2022/23
EBIT	€m	234	168
<b>EBT</b>	<b>€m</b>	<b>235</b>	<b>171</b>
<b>ROCE<sup>1</sup></b>	<b>%</b>	<b>14.2</b>	<b>17.2</b>
Quantities			
Concentrates	mt	1,291	1,262
Copper scrap / blister copper	mt	105	101
Sulfuric acid	mt	1,191	1,183
Cathodes	mt	304	305
Rod	mt	446	445
Shapes	mt	84	95
Flat rolled products and specialty wire	mt	62	67

<sup>1</sup> Rolling EBIT last 4 quarters.  
Prior-year figures restated.

Breakdown of income components in CSP segment  
6M 2023/24 YTD (YTD prior-year figures)

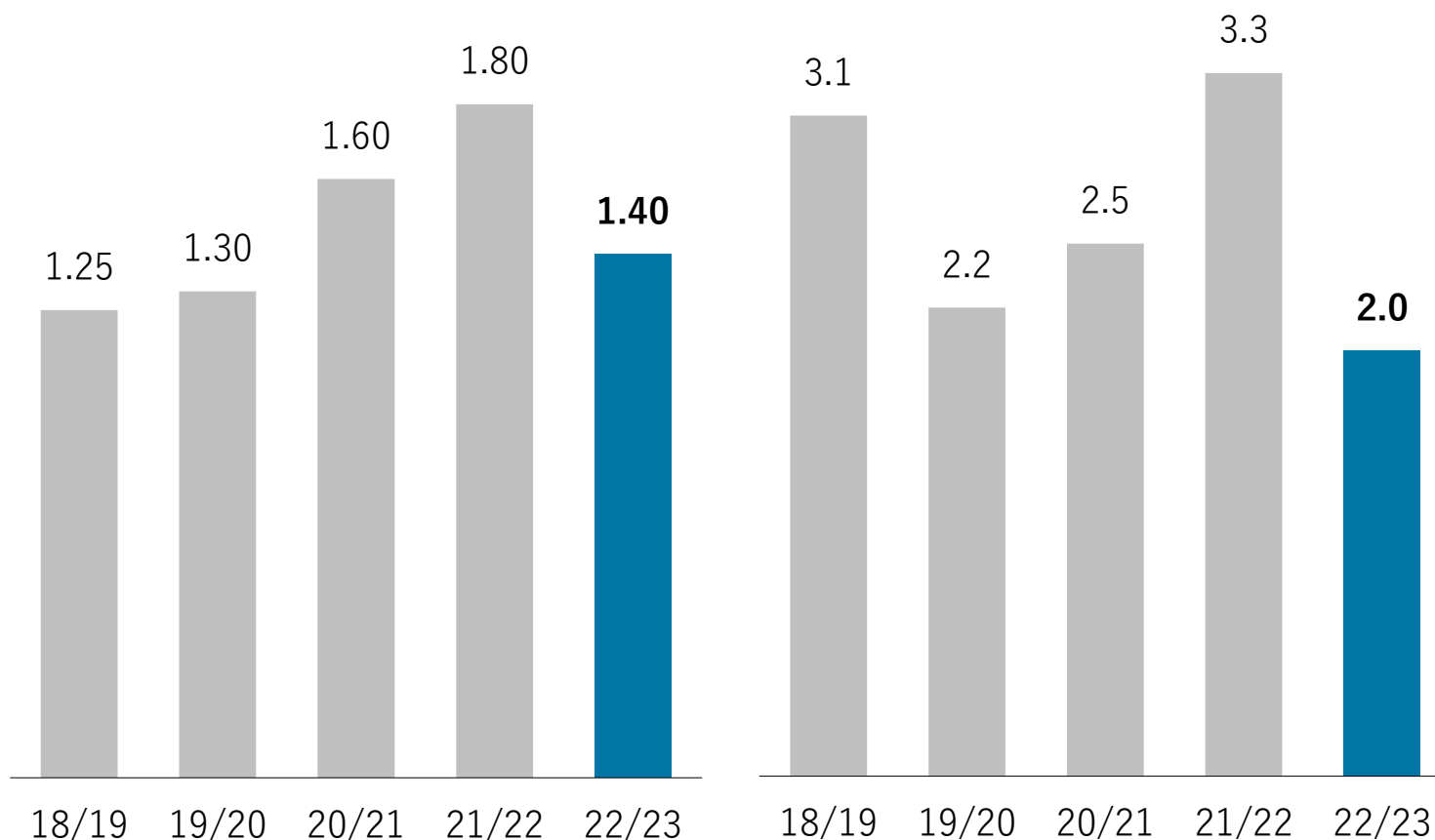


\* Gross margin = Total of earnings components metal result, treatment and refining charges for concentrate + recycling input, and premiums + products

# Dividend for fiscal year 2022/23

Aurubis dividend (in € per share)

Dividend yield (in %)



Aurubis' growth strategy requires high investments in the coming years

Strategic projects ensure considerable increase in overall group profitability in the years to come

# Market outlook for 2023/24

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## Copper concentrates

We anticipate a reduced but sufficient concentrate supply for Aurubis from the mining side thanks to our long-term sourcing strategy with the global mining industry. Our smelters are already well supplied into Q4 of FY 2023/24.

## Recycling input materials

Aurubis expects a subdued European supply situation for recycling materials due to intensified purchases from Asia and reduced industrial residues. The diversified supplier network buffers potential supply shortages. The secondary smelters are already largely supplied into Q4 of FY 2023/24.

## Sulfuric acid

Despite stabilizing demand on the market for sulfuric acid and current positive developments in sales prices, we still expect the revenue situation to develop less favorably than in FY 2023/24.

## Aurubis copper premium

Has been set at US\$ 228/t (2023: US\$ 228/t) for 2024.

## Other copper products

We expect demand for our wire rod to remain at the high level of the previous FY. Demand for shapes and flat rolled products will remain subdued.

# FY 2023/24 guidance

## Our forecast range

Operating **EBT**  
between € **380** million  
and € **480** million

Operating **ROCE**  
between **10** %  
and **14** %

	Operating EBT in € million	Operating ROCE in %
Group	<b>380–480</b>	<b>10–14</b>
Multimetal Recycling	60–120	5–9
Custom Smelting & Products	410–470	19–23

# Our strategy builds on Aurubis' sound mission and covers relevant aspects for driving sustainable growth



## Industry Leadership in Sustainability

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



**» We are consistently implementing the strategy**

# Strategic investments and EBITDA impact to increase substantially

## Short term

Currently approved

Strategic capex ~€ 1.7 billion approved

Key projects for the 3 strategic pillars – **Secure & Strengthen Core Business** (i.e., CRH & PM refinery), **Pursue Growth Options** (Aurubis Richmond), and **Sustainability** (i.e., PV park & Industrial Heat)

EBITDA impact over next 3 to 5 years ramping up to ~€ 260 million p.a., of which ~€ 170 million from Aurubis Richmond

## Medium term

Medium-term planning

Additional strategic capex is included in the medium-term planning and projects are developed along the project stage gates

Additional EBITDA potential identified mainly in the modular recycling system, battery recycling, and further expansion of Aurubis Richmond

## Long term

Until 2030

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

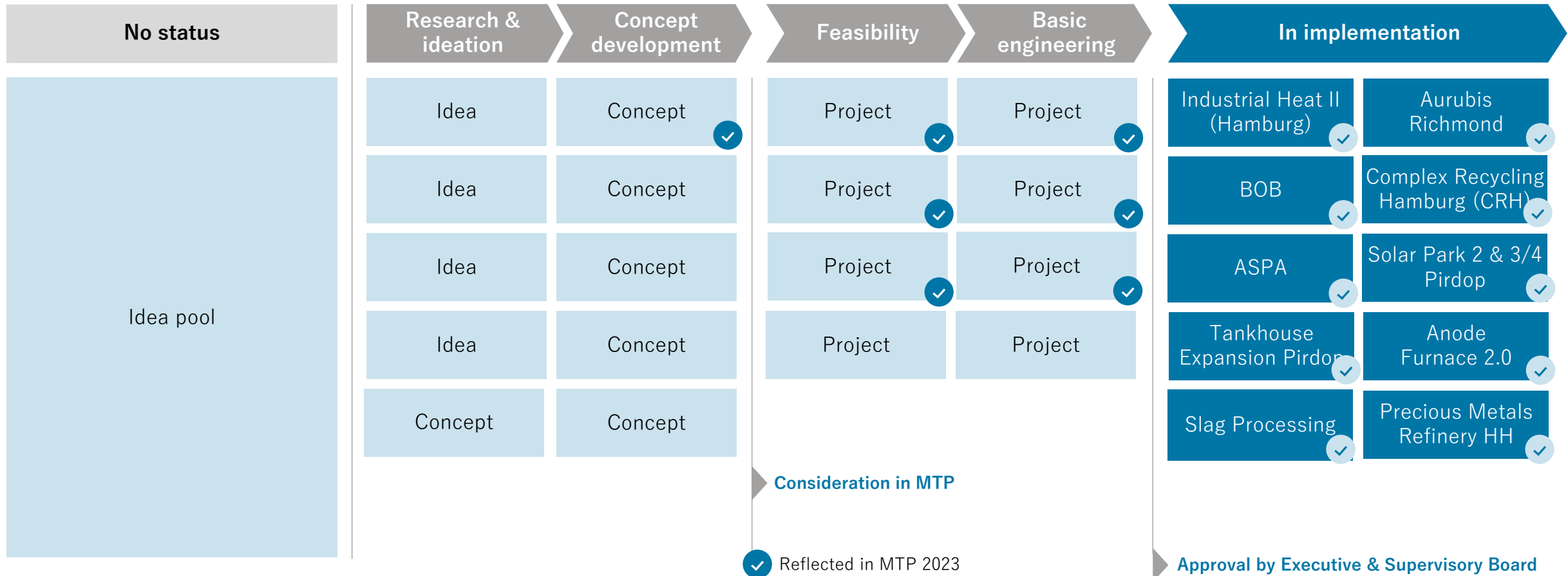
All capex projects are subject to a sustainability assessment (especially CO<sub>2</sub> contribution)

All strategic investments create valuable synergies with our existing processes and positively impact our op. ROCE target



# 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



# Timeline of strategic projects in implementation

Timeline for the commissioning of our strategic projects

2024

- **Bleed treatment Olen Beerse (BOB)** (BE Olen)
- **Industrial Heat II** (DE Hamburg)
- **Aurubis Richmond Module 1** (US Georgia)
- **Advanced Sludge Processing by Aurubis (ASPA)** (BE Beerse)
- **Solar Park 2&3** (BG Pirdop)
- **Anode Furnace 2.0** (DE Hamburg)

2025

- **Solar Park 4** (BG Pirdop)
- **CRH** (DE Hamburg)
- **Aurubis Richmond Module 2** (US Georgia)

2026

- **Tankhouse Expansion** (BG Pirdop)
- **Precious Metals Refinery** (DE Hamburg)
- **Slag Processing** (BG Pirdop)

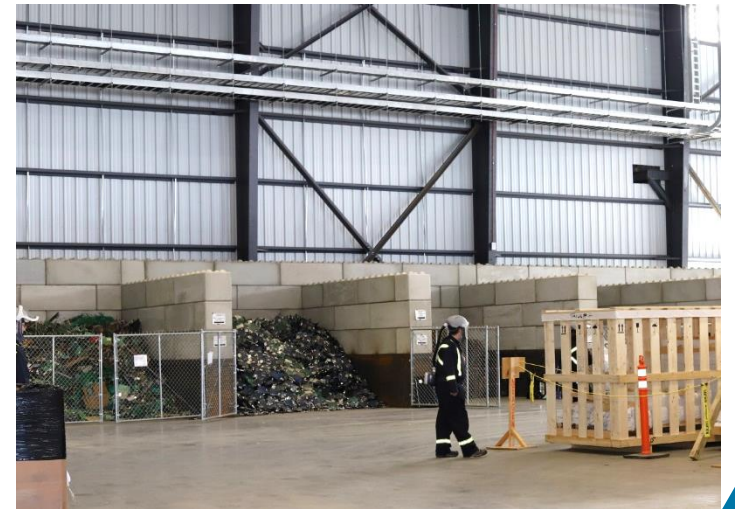
# Pursue growth options

## Aurubis Richmond makes further visible progress



# Aurubis Richmond, USA

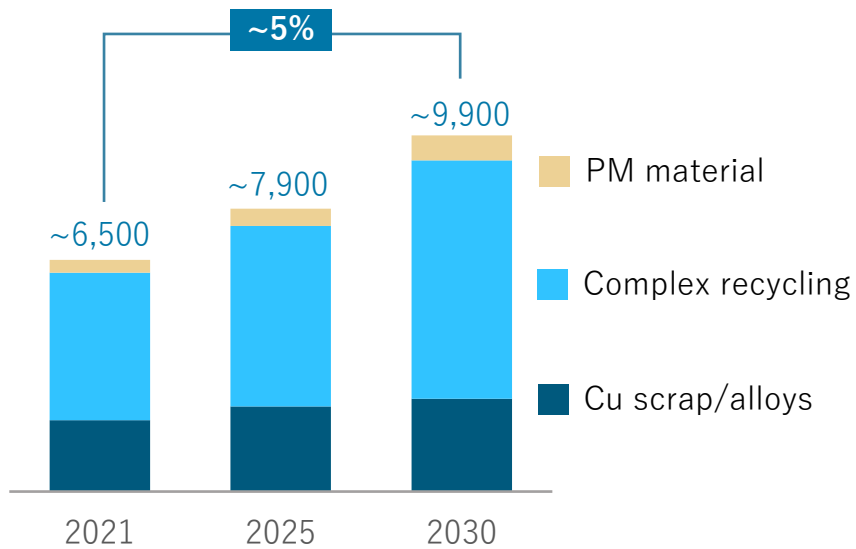
## Visible progress — first important milestones achieved



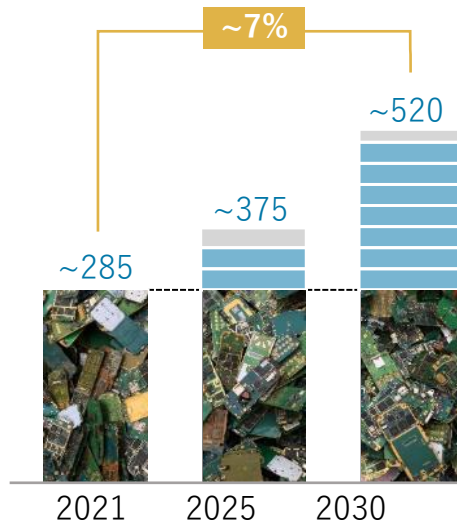
# Very attractive market environment: Relevant recycling materials to grow at ~5 % p.a. in North America

Pursuing growth in North America

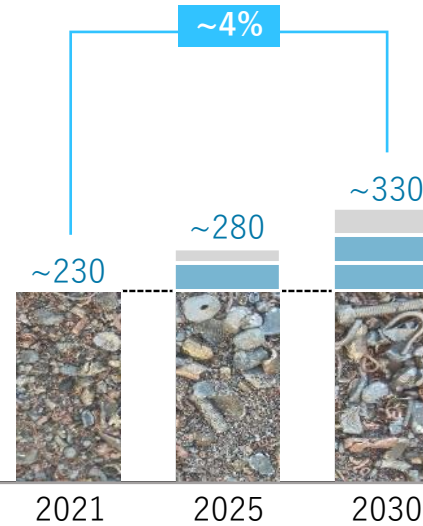
US-relevant recycling market (kt p.a.)



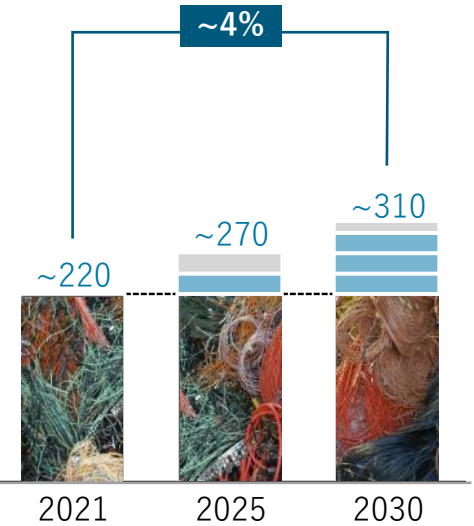
Printed circuit boards (PCB) supply (kt p.a.)



Metal shredder supply (kt p.a.)



Insulated copper wire supply (kt p.a.)



## Key growth drivers



### Collection rates

**Increasing collection rates**, especially of bulk e-waste and PCB materials (currently only ~30 %)



### Declining exports

Net export of copper scrap **continuously decreasing due to increasingly restrictive import policies in China/SEA**



### Incremental growth

**Continuous growth of industrial activity** and consumption of electronics lead to solid growth base

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



## Pursue Growth Options

Investment  
~ € 740 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.

~200 new jobs in total.

**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**

# Secure and strengthen core business: Investments in the Hamburg site

## Financial impacts

- Timeframe: May–July 2024
- Capex: approx. € 235 million in FY 2023/24
  - Maintenance € 95 million
  - H<sub>2</sub>-ready anode furnace around € 40 million
  - Industrial heat system around € 100 million
- EBT effect: approx. € -44 million in Q3 2023/24

## Key facts

Description: major maintenance and investments that can only take place during a shutdown include boiler repair, industrial heat expansion, installation of H<sub>2</sub>-ready anode furnaces, and brick lining of the furnace; during the project ~250 maintenance and repair activities will take place, projects and optimizations that will allow the primary asset to return to a 3-year maintenance cycle.



**Secure**  
Core Business



**Strengthen**  
Core Business



**Industry Leadership**  
in Sustainability



# Aurubis expands Germany's largest industrial heat system and makes anode furnaces H2-ready







# Investments in the Pirdop site: Strategic investments and baseline investments

## Financial impacts

- Capex: approx. € 400 million in FY 2023/24
  - Tankhouse expansion € 120 million
  - Groundbreaking for PV modules 2 & 3 + expansion announcement for PV module 4
  - Optimization of slag processing at Aurubis Bulgarian site
  - Baseline investments
- Strategic investments: approx. 60 % of € 400 million

## Baseline investments

Description: deploying 460 high-efficiency motors in the Bulgarian plant, replacing transformers, and installing state-of-the-art lighting technology. Further investments in a number of infrastructure projects and a company fleet of train cars to transport copper concentrates from the Port of Burgas to Pirdop.



Secure  
Core Business



Industry Leadership  
in Sustainability



Strengthen  
Core Business



# Start of tankhouse and solar park expansion



# Secure core business: Complex Recycling Hamburg (CRH) – further optimization of smelting process



CRH



# Secure & strengthen core business

## CRH: Further optimization of the smelting process in Hamburg



Secure  
Core Business



Strengthen  
Core Business

Investment  
~ **€ 190 million**

EBITDA p.a.  
~ **€ 40 million**  
(at full production)

Aurubis is **strengthening its core business** and investing € 190 million for further optimization of the smelting process at the Hamburg site.

Construction of a new TBRC at the Hamburg site incl. process gas cleaning system based on best available techniques (BAT).

Processing **internal and external value-added complex intermediates and recycled materials** with additional treatment and refining charges and metal recoveries.

Increase in metal yield (mainly precious metals) with lower process times.

CRH is the prerequisite for further attractive strategic projects (e.g., higher yield of additional industrial and precious metals).

Differentiation from competitors through expansion of metallurgical processes and extension of the value chain at the Hamburg site.

Start of production  
following ramp-up  
phase  
**Q4 2025**

~ **32,000 t** p.a.  
Input of external  
material

» **Project underscores Aurubis' commitment to its Hamburg site, while increasing capacities for the sustainable recovery of metals from intermediates and complex recycling materials**

# Pursue growth options

## Test pilot for battery recycling in Hamburg

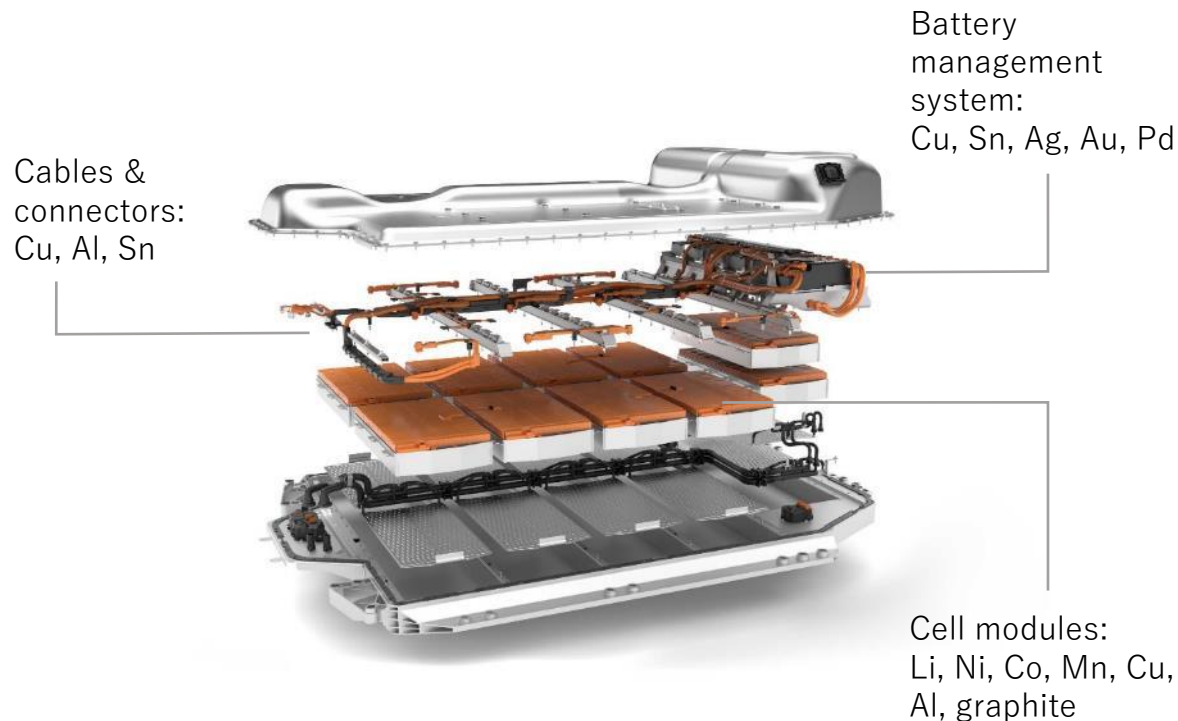


Battery recycling



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

Batteries are complex scraps that are of huge value

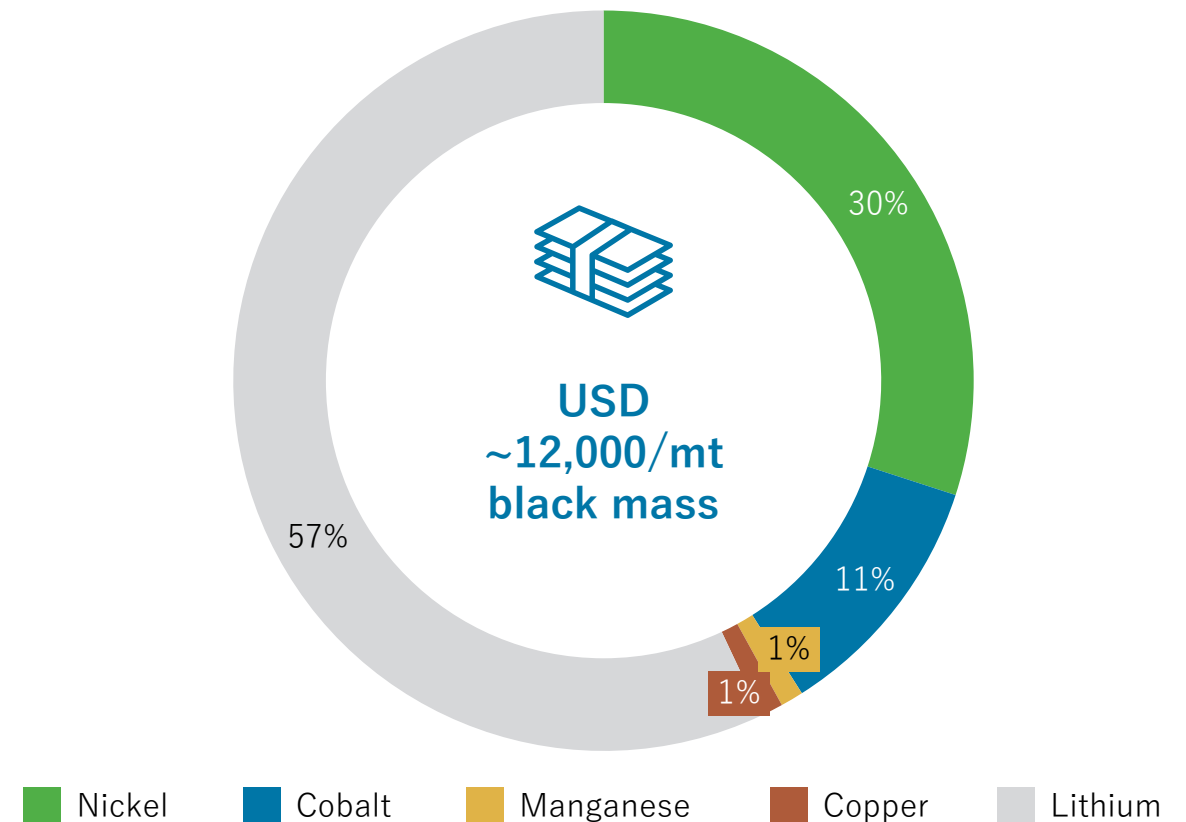


➤ Average black mass content: ~40 %

Source: BMW Group

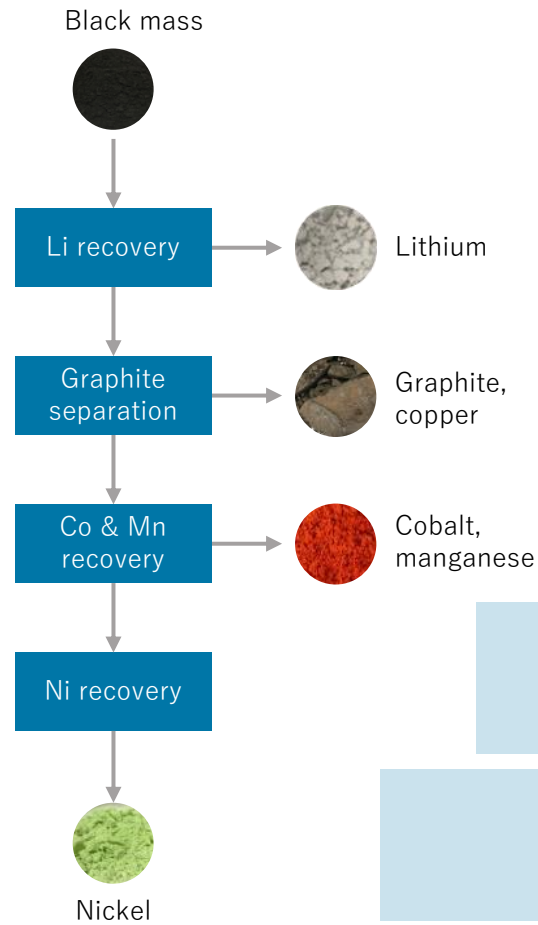
Aurubis / ODDO BHF - virtual Roadshow | May 16th, 2024

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



Source: Aurubis, Roland Berger, LME

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



## Benefits of the unique Aurubis process

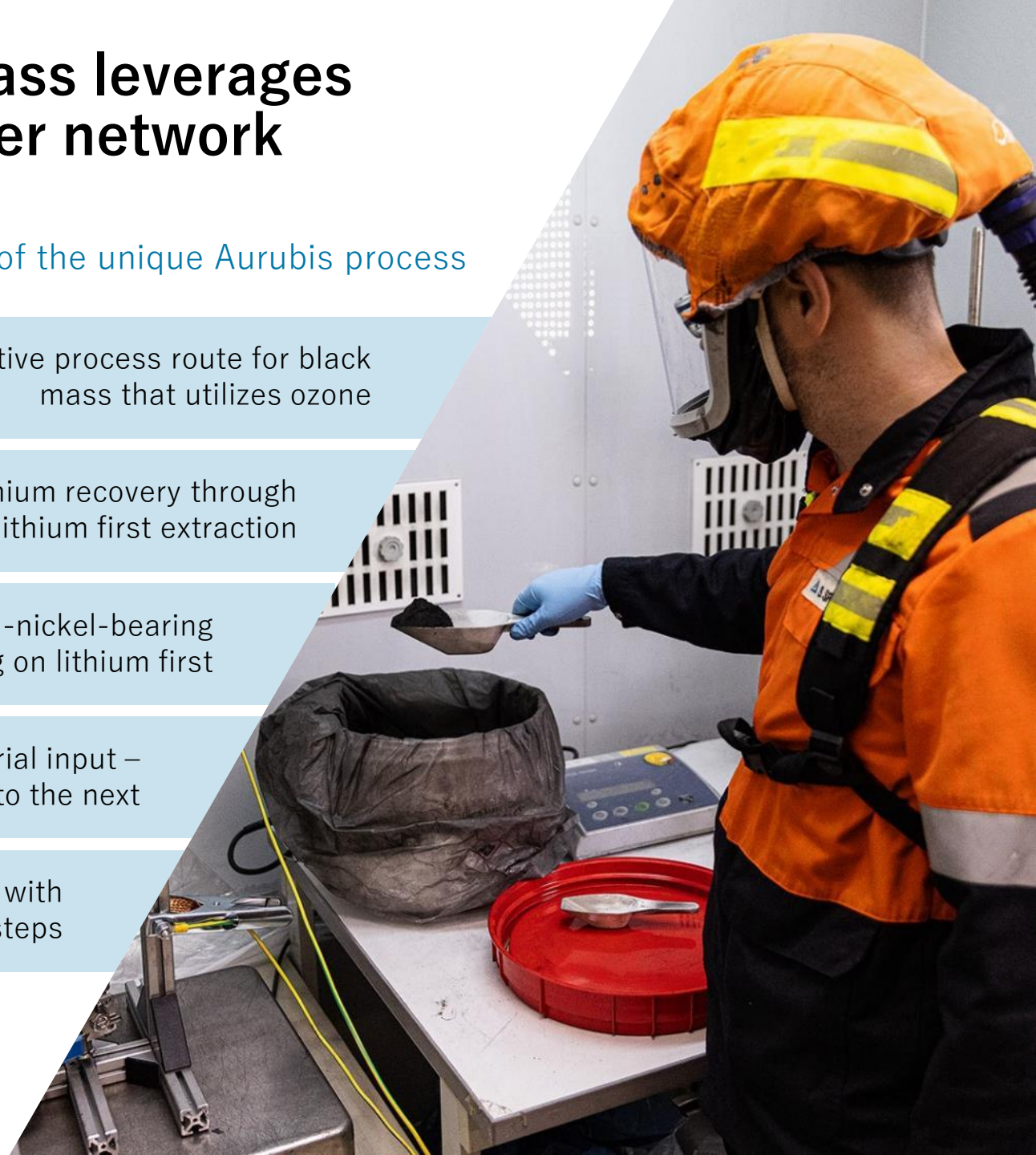
Innovative process route for black mass that utilizes ozone

High lithium recovery through lithium first extraction

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

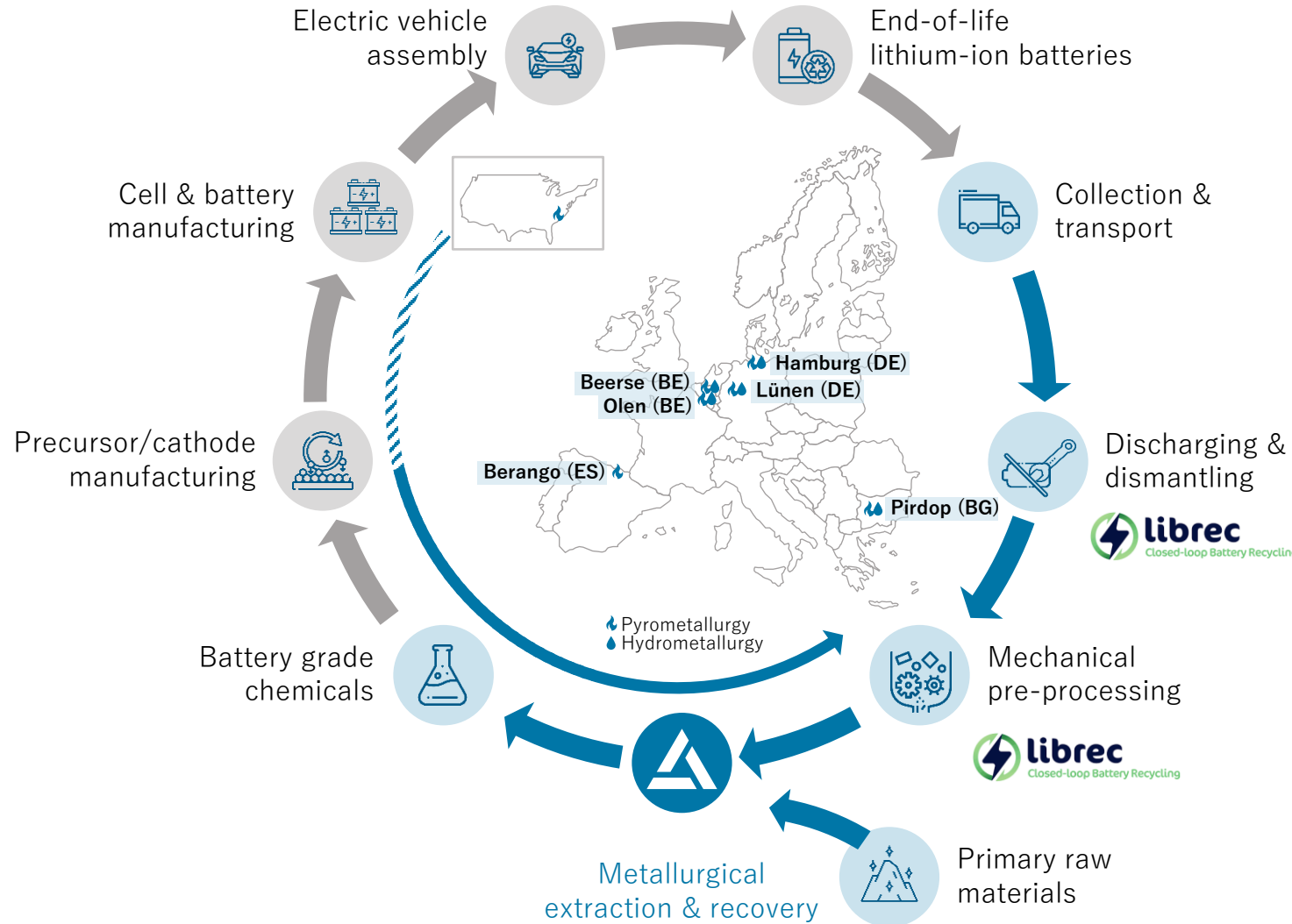
Flexibility regarding raw material input – no recycling material is identical to the next

Modularity – compatible with further refining steps





# 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

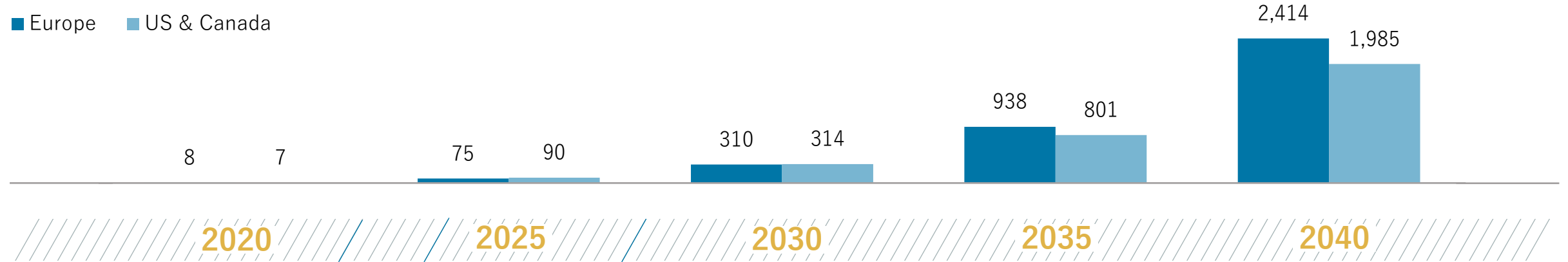
Aurubis' integrated smelter network offers unique benefits

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

# 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

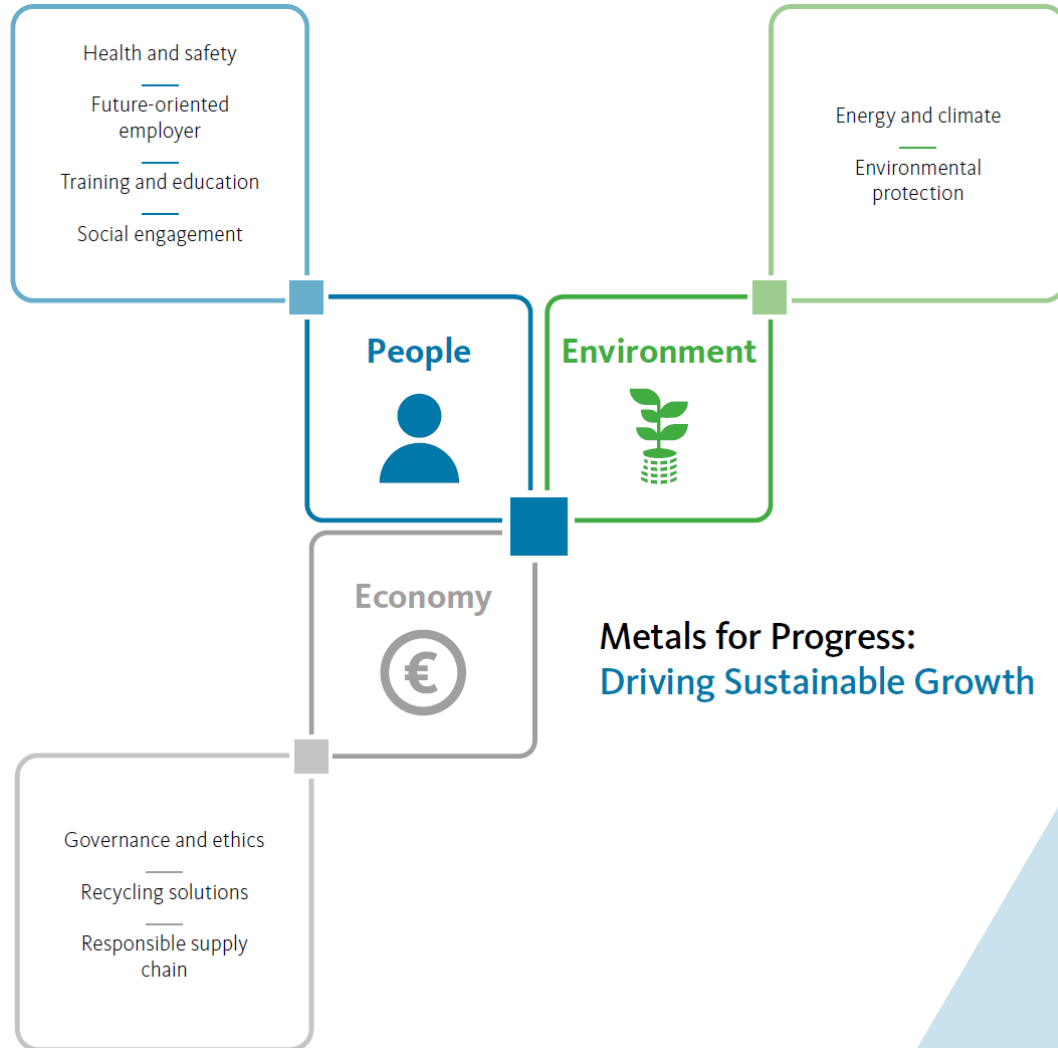
Criteria for site selection of commercial plant determined; site selection process is underway as we speak

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

# We continue to lead our industry in sustainability – minimizing emissions and costs, maximizing opportunities in new business areas



We continue to strengthen our position as the most efficient and sustainable multimetal producer worldwide

1

Sustainability is a fundamental part of Aurubis' strategy

2

We strive for **balance** between economy, environment, and people

3

9 action areas, targets and measures across E, S, and G

# 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 Beerse and Solberg certification in 2023 expected



Basis:  
UN SDGs & Risk Readiness Assessment



Joint Due Diligence Standard enables effective due diligence



Review of  
32 sustainability criteria



Aurubis Bulgaria, Hamburg, Lünen and Olen 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.



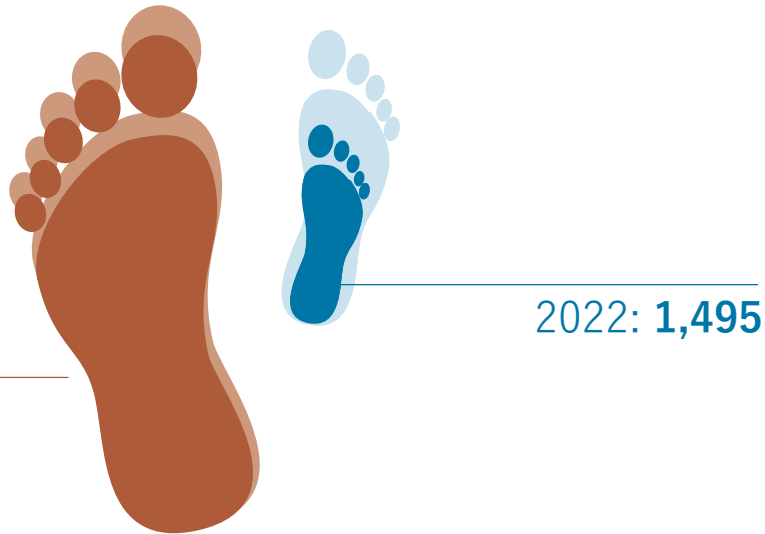
RESPONSIBLY  
PRODUCED  
COPPER

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

Copper cathodes (in kg CO<sub>2</sub> eq./t Cu)

Global industry average

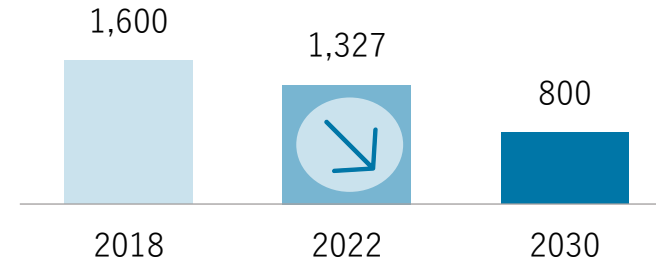
Aurubis



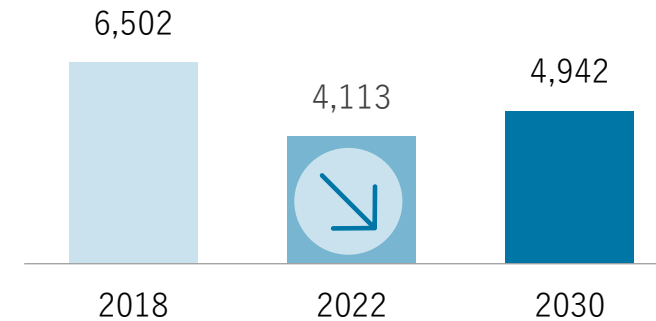
\* Please note that ITA data is reported using the CML method of impact assessment, which has limited comparability.

Source: International Copper Association 2019, Aurubis LCA 2022

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



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



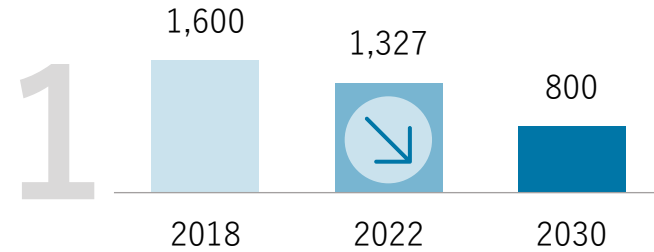
<sup>1</sup> Assumed steady copper cathode production until target year (physical intensity target). In 2022 we were able to draw on more accurate mine and transport data, so emissions were lower. We now plan to reassess and sharpen our 2030 target in FY 23/24 based on the better data now available.

» Aurubis continuously pursues better energy efficiency: lowering costs and reducing CO<sub>2</sub> emissions

# Our KPIs underline our sustainability ambitions and demonstrate momentum

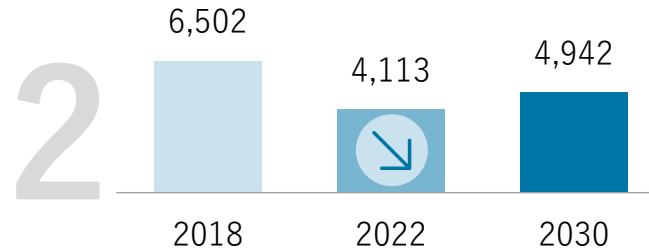


**Absolute Scope 1+2 CO<sub>2</sub> emissions**  
(in kt)

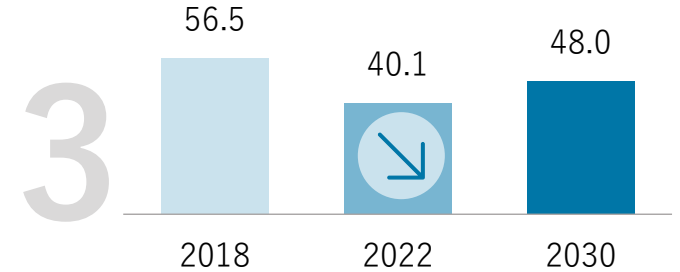


\* Preliminary figures

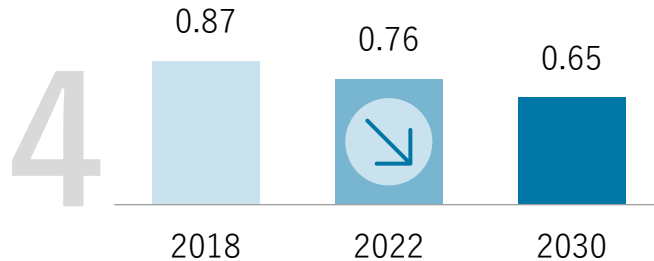
**Scope 3 CO<sub>2</sub> emissions**  
(in kt)<sup>1</sup>



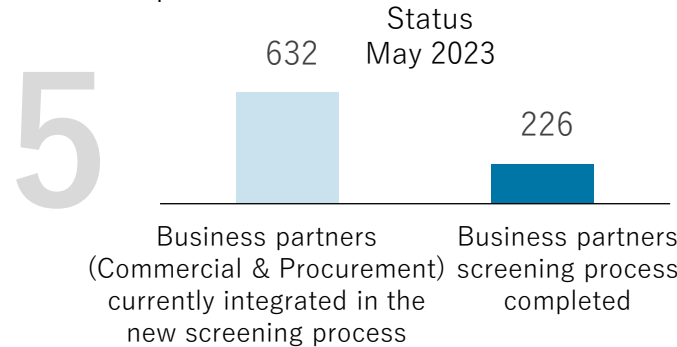
**Air emissions (dust)**  
(in g per t of multimetal Cu equivalent)<sup>2</sup>



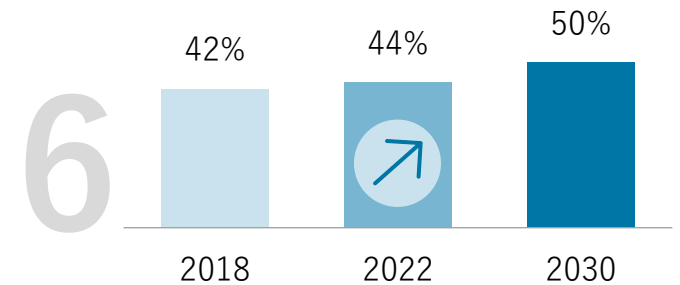
**Metal emissions to water**  
(in g per t of multimetal Cu equivalent)<sup>2</sup>



**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 %)



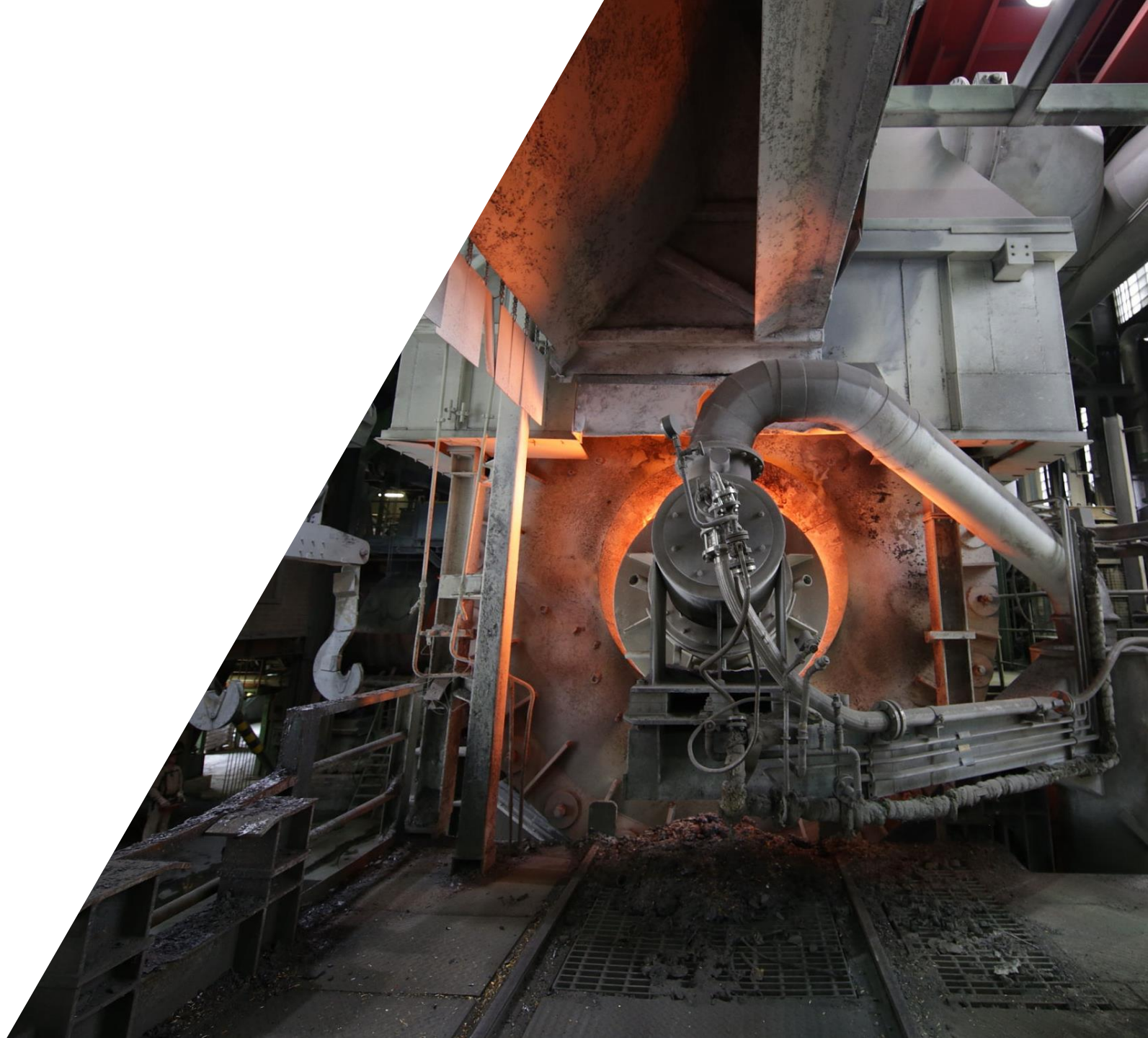
<sup>1</sup> Assumed steady copper cathode production until target year (physical intensity target). In 2022 we were able to draw on more accurate mine and transport data, so emissions were lower. We now plan to reassess and sharpen our 2030 target in FY 23/24 based on the better data now available.

<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.

# Aurubis AG Metals for Progress

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# Financial calendar

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- Q3 2023/24 August 5, 2024
- Annual Report 2023/24 December 5, 2024
- Annual General Meeting April 3, 2025 (preliminary)





# Your IR contacts

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# Overview of restated operating EBT Q1–Q4 2022/23 relevant only at Group and CSP level

- New findings have resulted from the investigation into and clarification of the criminal activities against Aurubis.
- We now assume that the negative impact of the criminal acts took effect at the start of the 2023 calendar year specifically.
- As a result, operating and IFRS results from Q2 2022/23 onwards have been restated in keeping with IAS 8.
- Restatement only applies to CSP segment and Group level
- The estimate of the impact is based on the special inventory as at August 31, 2023, the inventory as at the September 30, 2023 reporting date, and the additional analyses that we have carried out to date.
- According to best estimates, it is assumed that the financial impact on operating EBT as at the March 31, 2023 reporting date and the following quarters should have been as follows:

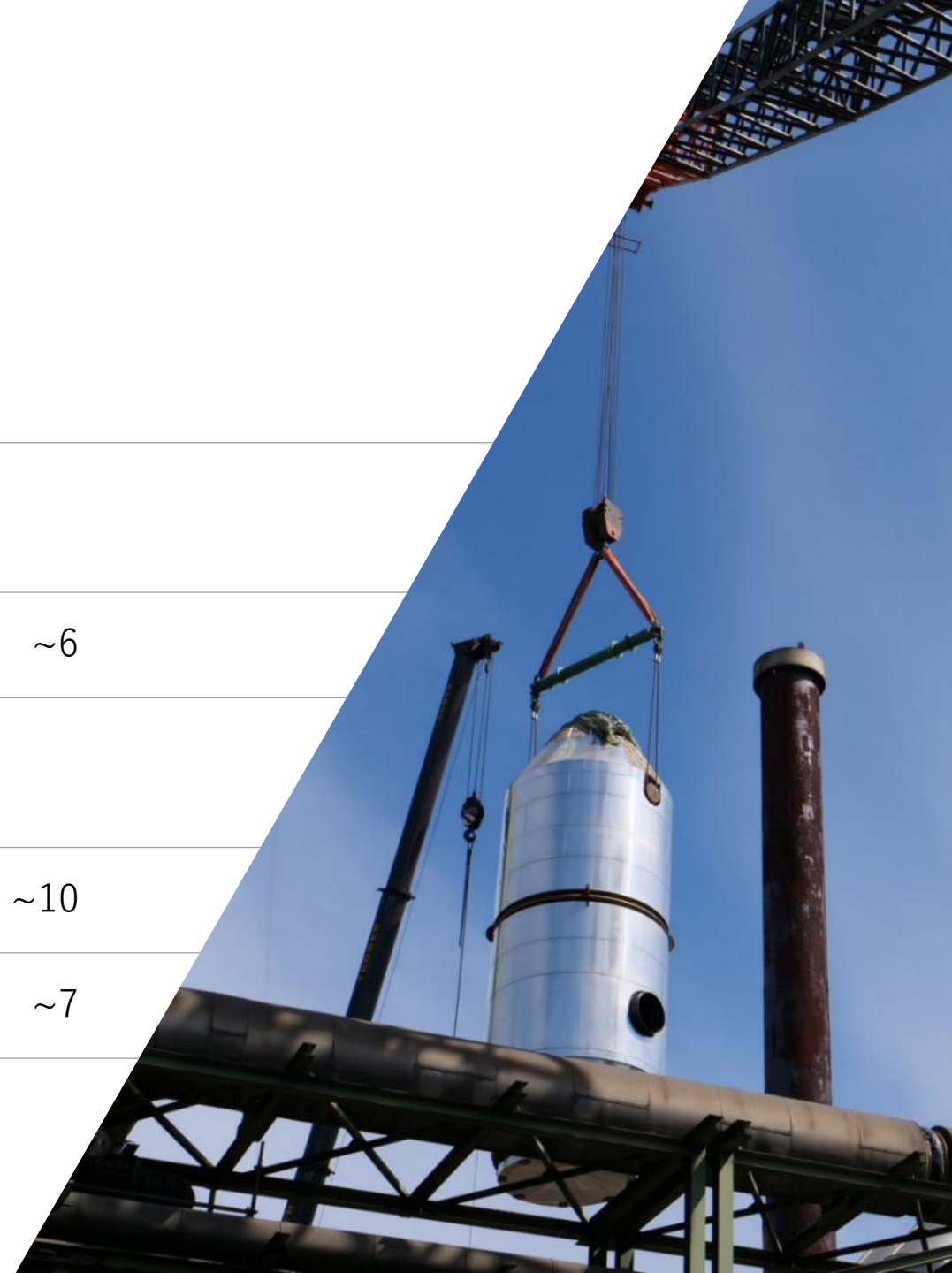
	3M	6M	9M	12M
(operating in €m)	2022/23	2022/23	2022/23	2022/23
<b>Aurubis Group</b>				
EBT before restatement	125	291	406	-
Restatement	0	-52	-149	-169
<b>EBT restated</b>	<b>125</b>	<b>239</b>	<b>257</b>	<b>349</b>
<b>CSP segment</b>				
EBT before restatement	108	223	322	-
Restatement	0	-52	-149	-169
<b>EBT restated</b>	<b>108</b>	<b>171</b>	<b>173</b>	<b>253</b>

# Scheduled shutdowns in the next 3 years



EBT effect from scheduled shutdowns (in € million)  
 Status: December 2023

	FY 2023/24		FY 2024/25		FY 2025/26	
Smelter maintenance Hamburg	May/July 2024	~44				
Anode furnace Hamburg					May/June 2026	~6
Smelter maintenance Pirdop			Apr/June 2025	~24		
KRS Lünen	May 2024	~10	May 2025	~10	May 2026	~10
Anode furnace Lünen	Nov/Dec 2023	~6	Nov/Dec 2024	~7	Nov/Dec 2025	~7



# 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 around [7,200 employees](#) worldwide

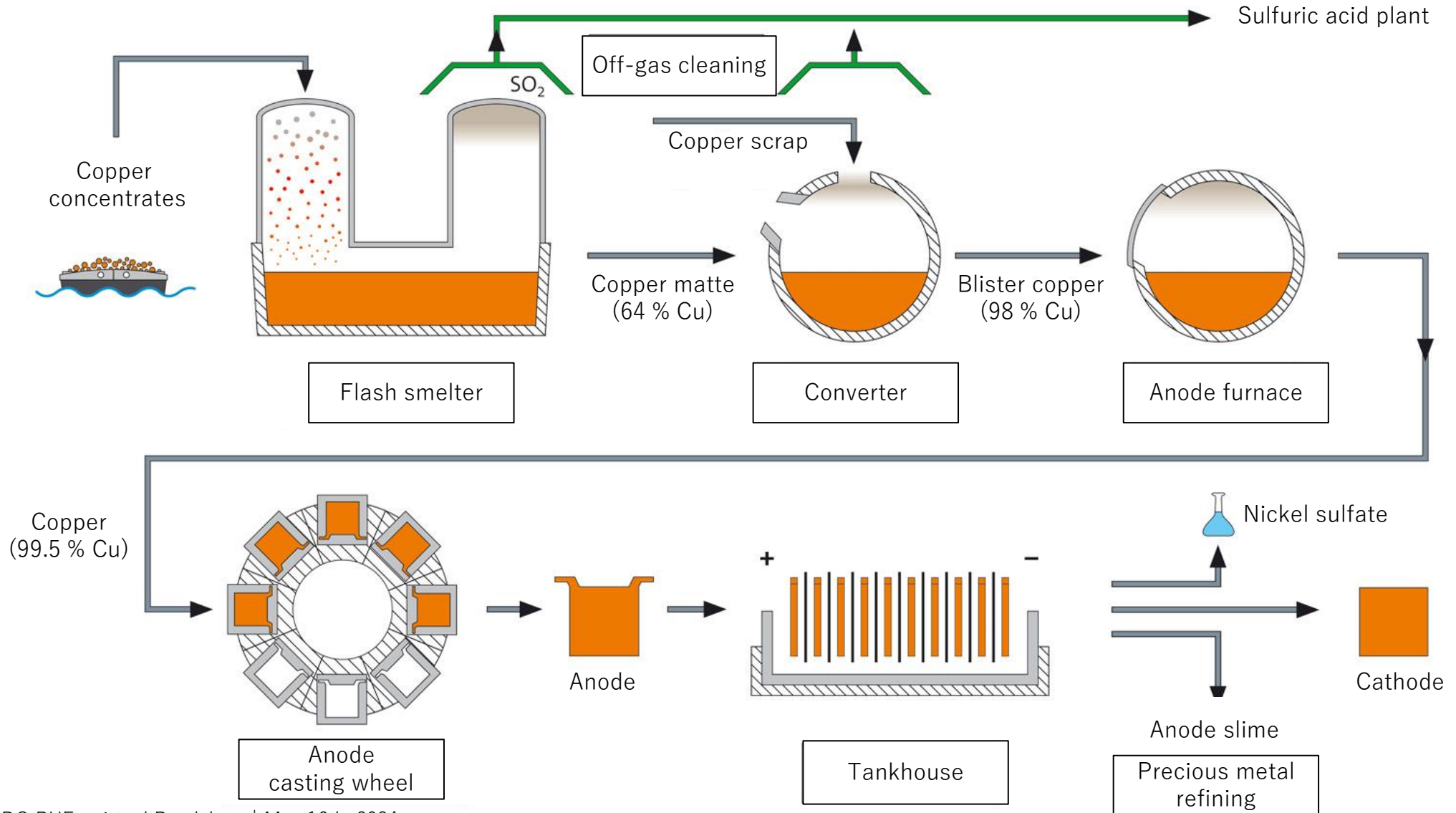


The Group is [active in more than 20 countries](#) and has production sites concentrated in [Europe](#) and [North America](#)



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.