

Sustainability KPI Update 2022/23



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Annual Report online at:
annualreport2022-23.aurubis.com

 **Aurubis**
Metals for Progress

With the KPI Update 2022/23, we are updating the KPIs from our Sustainability Report 2023 and supplementing the information provided in our Non-Financial Report 2022/23.

Sites and employees

GRI 2-7, GRI 2-8

Consolidated sites

Europe			
(DE)	Hamburg	Aurubis AG headquarters	2,696
		E. R. N. Elektro-Recycling NORD GmbH	13
		Peute Baustoff GmbH	12
	Lünen	Aurubis AG	686
	Stolberg	Aurubis Stolberg GmbH & Co. KG	446
	Emmerich	Deutsche Giessdraht GmbH	113
	Röthenbach	RETORTE GmbH Selenium Chemicals & Metals	42
BG	Pirdop	Aurubis Bulgaria AD	975
BE	Olen	Aurubis Belgium NV/SA	688
	Beerse	Aurubis Beerse NV	475
FI	Pori	Aurubis Finland Oy	310
IT	Avellino	Aurubis Italia Srl	89
ES	Berango	Aurubis Berango S. L. U.	97
UK	Edinburgh	Aurubis Beerse NV	1
FR	Metz	Aurubis Beerse NV	1
Employees in Europe			6,644
US			
US	Buffalo	Aurubis Buffalo Inc.	523
	Augusta	Aurubis Richmond LLP	63
Employees in the US			586
Total employees			7,230

The KPIs relate to permanent and temporary employment arrangements as at the reporting date of September 30, 2023. Excluding companies consolidated using the equity method. Sites without employees are not listed. Group representative offices are not listed separately.

Non-consolidated sites and independent sales employees

Europe			
DE	Berlin	azeti GmbH	34
SE	Västerås	Aurubis Holding Sweden AB	1
TR	Istanbul	Aurubis Turkey Kimya Anonim Sirketi	1
Employees in Europe			36
Asia			
CN	Beijing ¹		1
	Shanghai	Aurubis Metal Products (Shanghai) Co., Ltd.	4
JP	Tokyo ¹		1
KR	Seoul ¹		1
Employees in Asia			7
Total employees			43

¹ Agency/independent sales employees.

Raw materials

Concentrates and recycling materials are the raw materials from which copper is produced.

- Concentrates
- Recycling materials

Sales and distribution network

An international sales and distribution network markets our products.



Products

The copper is processed into products. Some products are already the result of copper production.

- Cathodes
- Wire rod
- Shapes
- Specialty profiles
- Precious metals
- Minor metals
- Sulfuric acid
- Iron silicate
- Strip/foil
- Specialty wire
- Synthetic minerals

Certifications by site

Site	The Copper Mark	EMAS	ISO 14001	ISO 50001	ISO 9001	IATF 16949	EfbV	ISO 45001	ISO 27001
Production sites									
Hamburg, headquarters (DE)	✓	✓	✓	✓	✓			✓	✓
Lünen (DE) ¹	✓	✓	✓	✓	✓		✓	✓	✓
Olen (BE)	✓		✓	✓	✓			✓	✓
Pirdop (BG)	✓		✓	✓	✓			✓	✓
Avellino (IT)		✓	✓	✓	✓			✓	✓
Beerse (BE)			✓	✓	✓			✓	✓
Berango (ES)			✓	✓	✓			✓	✓
Buffalo (US)			✓	✓	✓	✓		✓	✓
Emmerich, Deutsche Giessdraht (DE)			✓	✓	✓			✓	✓
Hamburg, E.R.N. (DE)			✓	✓	✓		✓	✓	
Hamburg, Peute Baustoff (DE)			✓	✓	✓ ²			✓	✓
Pori (FI)			✓	✓	✓			✓	✓
Röthenbach, RETORTE (DE)			✓	✓	✓			✓	✓
Stolberg (DE)			✓	✓	✓	✓		✓	✓
Stolberg, Schwermetall Halbzeugwerk (DE) ³		✓	✓	✓	✓			✓	

¹ The plant is also certified through WEEELABEX in accordance with the European series of standards EN 50625. The certificate confirms that waste electrical and electronic devices are efficiently treated and disposed of while minimizing environmental impact.

² For the sale of iron silicate granules used to produce blasting abrasives.

³ Not majority-owned by Aurubis (50 % stake).

Explanation:

EMAS: system of specifications for environmental management systems and environmental audits

ISO 14001: standard for environmental management systems

ISO 50001: standard for energy management systems

ISO 9001: standard for quality management systems

IATF 16949: standard for quality management systems in the automotive industry, based on ISO 9001

EfbV: Ordinance on Specialized Waste Management Companies (German certificate)

ISO 45001: standard for occupational safety management systems

ISO 27001: standard outlining requirements for information security management systems

ECONOMY

Overview

GRI 201-1

	Unit	2022/23	2021/22
Operating earnings before taxes (EBT)	€m	349	532
ROCE (return on capital employed)	%	11.3	19.0
R&D expenditure	€m	15	12
Environmental protection investments	€m	52.0	47.2
Environmental protection investments since 2000 (cumulative)	€m	836	784

Average recycled copper content in copper cathodes in the Group 2022/23

in %



Origin of concentrates and throughput 2022/23¹

GRI 301-1

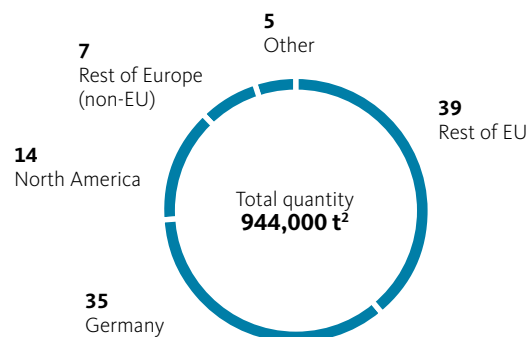
in %



Origin of recycling materials and throughput 2022/23¹

GRI 301-2

in %



¹ Percentages have been commercially rounded.

¹ Percentages have been commercially rounded.

² Excluding FRP.

Compliance and anti-corruption: Employees trained the past three years

GRI 205-2

	Unit	2020/21 to 2022/23
Anti-corruption	Employees	1,561
Percentage of total workforce	%	22.0
Antitrust law	Employees	612
Percentage of total workforce	%	8.6

Incidents or lawsuits

GRI 205-3, GRI 206-1, GRI 406-1

	Unit	2022/23
Corruption	Number	- ¹
Antitrust law	Number	0
Discrimination	Number	0

¹ Aurubis AG was the target of criminal activities at the Hamburg plant in fiscal year 2022/23. More information on the incidents and the ongoing investigation is available in the Annual Report 2022/23 (pages 141–144).

Human rights

GRI 2-23

	Unit	2022/23
Reports of topics relevant to human rights received		See pages 97–102 of the Aurubis Annual Report 2022/23
Human rights, environmental protection, and safety clauses in supply contracts for primary raw materials	%	100.0

ENVIRONMENT

Energy

GRI 302-1, GRI 301-2, GRI 302-3

	Unit	2022	2021	2020
Total energy consumption within the organization	million MWh	3.61	3.79	3.72
Total energy consumption from renewable energies	million MWh	0.42	0.13	0.15
Primary energy consumption¹	million MWh	1.76	1.85	1.72
Total fuel consumption from non-renewable sources	million MWh	1.76	1.85	1.71
– Natural gas	million MWh	1.29	1.31	1.21
– Heating oil	million MWh	0	0	0
– Liquefied petroleum gas (LPG)	million MWh	0.04	0.03	0.04
– Diesel	million MWh	0.04	0.05	0.05
– Fuel oil	million MWh	0.29	0.32	0.27
– Coke	million MWh	0.09	0.11	0.11
Total fuel consumption from renewable sources	million MWh	0.002	0.002	0.002
– Wood and wood waste	million MWh	0	0	0
– Landfill gas (LFG)	million MWh	0.002	0.002	0.002
Secondary energy consumption²	million MWh	1.85	1.94	2.00
Total electricity consumption	million MWh	1.81	1.87	1.93
Total bought-in electricity	million MWh	1.76	1.77 ⁴	1.88
– from non-renewable sources	million MWh	1.36	1.62	1.79
– from renewable sources	million MWh	0.42	0.13	0.11
Consumption of internally generated renewable energies	million MWh	0.053	0.032 ⁴	0.046 ⁴
Consumption of bought-in steam	million MWh	0.03	0	0.05
Energy intensity³	MWh/t	2.27	1.94	2.00

¹ Including energy consumption for on-site vehicle traffic.

² Including electricity for oxygen generation.

³ Values based on copper production, i.e., at the Hamburg, Lünen, Pirdop, Olen, Beerse and Berango sites.

⁴ Values have been recalculated and adjusted.

To evaluate our environmental protection performance, we carried out a life cycle assessment (LCA) for our main products. The results are available on our website.

📄 Environmental profiles

Reduction in energy consumption through individual projects

GRI 302-4

	Unit	2022/23
Total	MWh	11,880
Operational optimization of anode furnace channel burner, Hamburg (DE)	MWh	5,909
Adjustment of heating curves, temperature reduction in interior spaces, Hamburg (DE)	MWh	2,839
Electric heat exchanger to increase methane gas combustion temperature, Avellino (IT)	MWh	2,324
Integration of steam condensate into rinsing water — heat, Olen (BE)	MWh	261
Frequency regulation of Delmet exhaust blower, Olen (BE)	MWh	189
Installation of pressurized air delimiters, Avellino (IT)	MWh	188
Integration of steam condensate into rinsing water — electricity, Olen (BE)	MWh	170

CO₂ emissions¹

GRI 305-1, GRI 305-2, GRI 305-3, GRI 305-4

	Unit	2022	2021	2020
Scope 1 and 2²	1,000 t CO ₂	1,327	1,605	1,563
Scope 1 (emissions produced as a direct result of burning fuels in internal facilities)	1,000 t CO ₂	555	559	540
Scope 2 (indirect emissions related to purchased energy, e.g., electricity) ³	1,000 t CO ₂	772	1,047	1,023
Specific Scope 1 emissions	t/t of copper output	0.35	0.37	0.31
Specific Scope 2 emissions	t/t of copper output	0.49	0.67	0.62
Scope 3 (other indirect emissions)⁴	1,000 t CO ₂	4,113	6,181	5,940
Specific Scope 3 emissions ⁵	t CO ₂ per t copper cathodes	3.70	5.55	5.53

¹ Aurubis reports its CO₂ emissions using the methods of the “European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MRR) — General Guidance for Installations” and “The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition).” In accordance with the emissions trading system, emissions from diesel vehicles are not included. However, they make up a very small percentage compared to other sources. Scope 2 emissions are reported here using the market-based method.

² Value for reference year 2018 according to the 2030 targets as part of the 2030 Aurubis sustainability targets: 1,459.

³ From 2021 to 2022, Scope 2 emissions fell by around 30 %, since we expanded our procurement of green electricity in 2022 and 2023.

⁴ To calculate the Scope 3 emissions for calendar year 2022, we were able to draw on mine data for the category of purchased goods and services for over 60 % of the copper concentrate purchased. This allowed us to use more exact and supplier-specific data. For the remaining volume, we used the ICA average, which was adjusted in September 2022 and is significantly lower. In transport, more differentiated data was available on the type of transport. This made it possible to better differentiate the modes of transport and evaluate them using the associated, more specific emission factors.

⁵ Value for reference year 2018 according to the 2030 targets as part of the 2030 Aurubis sustainability targets: 5.60.

Scope 3 emissions by activity

GRI 305-3

	Unit	2022
Purchased goods and services	%	83
Upstream transport and delivery	%	5
Fuels and energy-related activities	%	4
Downstream transport and delivery	%	4
Investment goods	%	3
Employees' commuting routes	%	<1
Generated waste	%	<1
Business travel	%	<1

Reduction in CO₂ emissions through individual projects

GRI 305-5

	Unit	2022/23
Total	t	2,293
Operational optimization of anode furnace channel burner, Hamburg (DE)	t	1,075
Adjustment of heating curves, temperature reduction in interior spaces, Hamburg (DE)	t	516
Electric heat exchanger to increase methane gas combustion temperature, Avellino (IT)	t	462
Integration of steam condensate into rinsing water — heat, Olen (BE)	t	35
Frequency regulation of Delmet exhaust blower, Olen (BE)	t	75
Installation of pressurized air delimiters, Avellino (IT)	t	61
Integration of steam condensate into rinsing water — electricity, Olen (BE)	t	68

Nitrogen oxides (NO_x), sulfur dioxide (SO₂), and dust¹

GRI 305-7

	Unit	2022	2021	2020
NO _x	t	877	820	863
SO ₂	t	4,789	5,212	5,424
Specific SO ₂ emissions ²	g/t of copper output	4.3	5.1	5.4
Dust	t	77	86	102
Specific dust emissions ^{1,3}	g/t of copper output	41	46	56
Specific dust emissions ⁴	g/t of multimetal copper equivalent	40	42	52

¹ Values based on copper production, i.e., at the Hamburg, Lünen, Pirdop, Olen and as of 2020, the Beerse and Berango sites.

² Values based on primary copper production, i.e., at the Hamburg and Pirdop sites.

³ Value for reference year 2012 according to the 2022/23 targets as part of the 2030 Aurubis sustainability targets: 72.

⁴ Value for reference year 2018 according to the 2030 targets as part of the 2030 Aurubis sustainability targets: 56.

Water and effluents

GRI 303-3, GRI 303-4, GRI 303-5

	Unit	2022	2021	2020
Total water withdrawal	million m ³	70.7	77.9	78.3
Water withdrawal by source:				
– Surface water	million m ³	67.4	74.2	74.6
– Rainwater	million m ³	0.6	0.6	0.6
– Groundwater	million m ³	0.4	0.7	0.6
– Municipal water	million m ³	2.0	2.1	2.2
– Other ¹	million m ³	0.3	0.4	0.3
Total water discharge	million m ³	66.4	70.3	71.9
Water discharge by destination:				
– Surface water	million m ³	65.3	69.1	70.5
– Municipal wastewater system	million m ³	1.1	1.2	1.3
– Wastewater to third parties	million m ³	<0.1	<0.1	<0.1
Metal emissions to water ²	g/t of copper output	0.8	0.9	0.8
Metal emissions to water ³	g/t of multimetal copper equivalent	0.7	0.8	0.7

¹ Other: distilled water, steam, etc.

² In this table, we refer to the copper production sites that discharge directly into water. In Lünen and Berango, wastewater is directed to the public sewer system after being treated on the plant premises, so these sites aren't included.

Value for reference year 2012 according to the 2022/23 targets as part of the 2030 Aurubis sustainability targets: 2.2.

³ Value for reference year 2018 according to the 2030 targets as part of the 2030 Aurubis sustainability targets: 0.9.

KPIs related to waste

GRI 306-3, GRI 306-4, GRI 306-5

	Unit	2022	2021	2020
Hazardous waste	t	47,361	50,543	50,970
Landfilling	t	36,332	36,653	36,473
Disposal (thermal)	t	159	1,254	370
Thermal utilization	t	659	445	441
Recycling	t	8,035	10,338	11,638
Storage	t	257	1,417	1,899
Internal utilization/recycling	t	1,919	436	149
Non-hazardous waste	t	38,740	41,984	81,705
Landfilling	t	2,731	4,439	17,491
Disposal (thermal)	t	643	583	624
Thermal utilization	t	802	950	435
Recycling	t	33,828	34,970	57,068
Storage	t	71	211	133
Internal utilization/recycling	t	664	832	5,955
Construction waste	t	126,730	28,554	17,887

Conservation areas in close proximity (copper production sites)

GRI 304-1

	Name	Type	Distance	Direction
Hamburg (DE)	Hamburger Unterelbe	Natura 2000	200 – 600 m	Southeast
	Holzhafen	Natura 2000	600 – 1,000 m	East
	Heuckenlock/Schweenssand	Natura 2000	3,600 m	South
Pirdop (BG)	Tsentralen Balkan — bufer (bird conservation area)	Natura 2000	approx. 1,700 m approx. 2,300 m	North East
	Tsentralen Balkan — bufer (nature conservation area)	Natura 2000	approx. 1,000 m	North
	Sredna gora ¹	Natura 2000	approx. 2,300 m	South
Lünen (DE)	In den Kaempen, Im Mersche, and Langerner Hufeisen	Natura 2000	<2,000 m	Northeast
	Lippeaue	Natura 2000	<5,000 m	Northwest
	Lippe-Unna, Hamm, Soest, Warendorf	Natura 2000	<2,500 m	Northwest
Olen (BE)	Valleigebied van de Kleine Nete met haar brongebieden, moerassen en heiden	Natura 2000	approx. 1,000 m	North
	De Vallei van de Kleine Nete Benedenstroom	VEN ²	approx. 1,000 m	North
	Het Olensbroek-Langendonk	VEN ²	approx. 1,000 m	North
Beerse (BE)	Eksterheide	Natura 2000	approx. 500 m	West
	Duivelskuil	Natura 2000	approx. 750 m	Southwest
	Pomp-Poelberg	Natura 2000	approx. 1,000 m	Northwest
Berango (ES)	Ría de Mundaka-Cabo de Ogoño Marine Area	Natura 2000	approx. 3,500 m	North
	Ría del Barbadun	Natura 2000	approx. 10,000 m	Southwest

¹ The nature conservation area Sredna Gora is home to the Dushantsi Reservoir, which was created at the same time the copper smelter was constructed in the 1950s to supply industrial water to the Pirdop plant and is operated by Aurubis.

² VEN: Vlaams Ecologisch Netwerk (Flemisch Ecological Network).

PEOPLE

Personnel structure

GRI 2-7, GRI 401-1, GRI 405-1

	Unit	2022/23	2021/22	2020/21
Total employees	Number	7,230	6,913	7,135
– Female	%	14	13	13
– Male	%	86	87	87
Blue collar	Number	4,168	4,018	4,285
– Female	%	4	4	4
– Male	%	96	96	96
White collar	Number	2,757	2,567	2,519
– Female	%	29	28	28
– Male	%	71	72	72
Apprentices (including Pirdop, BG)	Number	305	328	331
– Female	%	12	13	14
– Male	%	88	87	86
Temporary workers ¹	Number	136	170	166
New employee hires (including apprentices)	Number	930	853	662
Turnover rate (excluding apprentices)	%	8.3	9.5	9.5
Average length of employment in the company	Years	13.3	14.0	14.4

¹ Personnel that are legally employed by an external service provider, regularly work for Aurubis, and have been approved in the course of internal personnel and resource planning. External consultants and service providers are not included.

Temporary and permanent contracts¹

GRI 2-7

	Unit	2022/23		2021/22		2020/21	
		Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
Total employees	Number	6,621	304	6,325	260	6,589	215
Female	Number	898	70	801	60	815	48
Male	Number	5,723	234	5,524	200	5,774	167
Employees in Germany	Number	3,499	209	3,402	159	3,347	121
Employees in Europe (excluding Germany)	Number	2,549	82	2,416	77	2,679	81
Employees in the US	Number	573	13	507	24	563	13

¹ Excluding apprentices.

Full-time and part-time employees¹

GRI 2-7

Unit		2022/23		2021/22		2020/21	
		Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Total employees	Number	6,539	386	6,222	363	6,448	356
Proportion of total employees	%	94	6	94	6	95	5
Female	Number	823	145	716	145	719	144
Proportion of female employees	%	85	15	83	17	83	17
Male	Number	5,716	241	5,506	218	5,729	212
Proportion of male employees	%	96	4	96	4	96	4

¹ Excluding apprentices.

Age structure¹

GRI 405-1

	Unit	2022/23	2021/22	2020/21
< 30 years	Number	1,039	955	946
30 – 50 years	Number	3,610	3,381	3,412
> 50 years	Number	2,276	2,249	2,446

¹ Excluding apprentices.

Proportion of female managers

GRI 405-1

	Unit	2022/23	2021/22	2020/21
On the Supervisory Board	%	33	33	33
On the Executive Board	%	25	0	0
1 st management level	%	26	24	28
2 nd management level	%	18	22	20

Individuals with a disability

GRI 405-1

	Unit	2022/23	2021/22	2020/21
Percentage of individuals with a severe disability ¹	%	5.1	5.5	5.9

¹ For Aurubis AG.

Proportion of employees covered by collective wage agreements¹

GRI 2-30

	Unit	2022/23	2021/22	2020/21
Proportion of total employees	%	87	86	88
Proportion of AG employees	%	87	87	88

¹ The applicable collective bargaining agreements ensure the minimum standard at all our sites. The remaining percentages are executives and management employees in senior positions.

Apprenticeship rate and apprentice retention rate in Germany

	Unit	2022/23	2021/22	2020/21
Apprenticeship rate	%	7.5	8.1	8.4
Apprentice retention rate	%	67.3	79.1	71.6

Training hours

GRI 404-1

	2022/23	2021/22	2020/21
Average number of training hours per employee in the Group	21.1	15.3	13.9
Blue collar	19.2	12.0	13.7
White collar	24.1	20.9	14.2
Percentage of employees receiving training in the Group	98.3%	83.6%	61.2%
Blue collar	99.2%	76.3%	58.6%
White collar	97.5%	95.8%	65.5%

Occupational safety

GRI 403-9

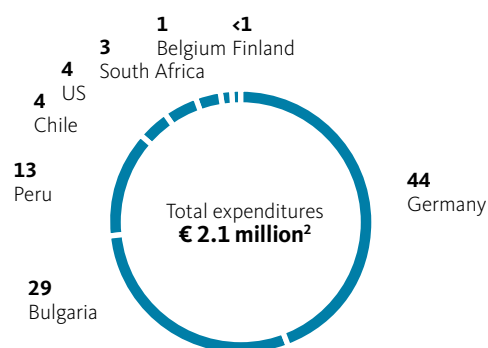
	Unit	2022/23	2021/22	2020/21
Aurubis employees				
Absolute number of accidents ¹	Number	33	34	55
– of which fatal accidents	Number	3	0	0
LTIFR	Rate	3.2	3.2	5.1
Severity rate	Rate	0.27	0.22	0.31
Temporary workers				
Absolute number of accidents	Number	4	4	4
– of which fatal accidents	Number	0	0	0
LTIFR	Rate	16.0	10.9	12.5
External companies				
Absolute number of accidents	Number	12	12	33
– of which fatal accidents	Number	0	0	0
LTIFR	Rate	2.8	3.1	8.7

¹ Including the Beerse (Belgium) and Berango (Spain) sites starting June 1, 2020. Excluding Cablo Metall-Recycling and Handel GmbH, Ferbellin (which has belonged to the CABLO GmbH joint venture with the TSR Recycling GmbH & Co. KG recycling company since June 1, 2021 and in which Aurubis holds a 40% stake) and Schwermetall Halbzeugwerk GmbH & Co. KG starting June 1, 2021. As of August 1, 2022, excluding the sold sites Zutphen (Netherlands), Birmingham (United Kingdom), Dolný Kubín (Slovakia), and Mortara (Italy). Including Aurubis Richmond (US) starting October 1, 2022.

Total expenditures for social engagement and regional distribution 2022/23¹

GRI 203-1, GRI 413-1

in %



¹ Percentages have been commercially rounded.

² The total expenditures mainly comprise sponsoring amounts and donations combined.

About the KPI Update

GRI 2-3

With the KPI Update 2022/23, we are updating the KPIs from our Sustainability Report 2023 and supplementing the information provided in our Non-Financial Report 2022/23. The reporting period is fiscal year 2022/23. The Aurubis fiscal year starts on October 1 and ends on September 30. All environmental and energy KPIs are reported for calendar year 2022, not fiscal year 2022/23. These KPIs are used first and foremost for internal management purposes and reporting for governmental authorities, for which the calendar year is the given period under review. Parallel reporting of both calendar year and fiscal year figures could lead to confusion and ambiguity.

In addition to Aurubis AG, the scope of consolidation includes all of the fully consolidated subsidiaries (as at September 30, 2023) and therefore fundamentally corresponds to the scope of consolidation of the Annual Report, excluding Schwermetall Halbzeugwerk GmbH & Co. KG, in which Aurubis holds a 50% stake. The Fehrbellin site has belonged to the joint venture Cablo GmbH with the recycling company TSR Recycling GmbH & Co. KG since June 1, 2021. Aurubis holds a 40% stake. The site is still fully consolidated in the environmental KPIs until 2020. The KPIs for the Beerse and Berango sites are included as of June 1, 2020, and in the environmental KPIs starting January 1, 2020. The environmental and energy KPIs are reported for production sites that are majority-owned (>50%) by Aurubis (see page 2). This reflects most of the energy consumption and emissions. The volume at the slitting centers and sales offices is negligible in comparison. When copper production is mentioned in the context of environmental KPIs, this refers to primary and secondary copper production at the Hamburg, Lünen, Olen, Pirdop, Beerse and Berango sites. Any deviations from the scope of consolidation are expressly stated for the relevant figures.

The Non-Financial Report is released annually as part of the Annual Report. The last Sustainability Report was released in spring 2023, and the Non-Financial Report for fiscal year 2022/23 was released with the Aurubis AG Annual Report in December 2023.

[Annual Report 2022/23](#)