Capital Market Day 2018

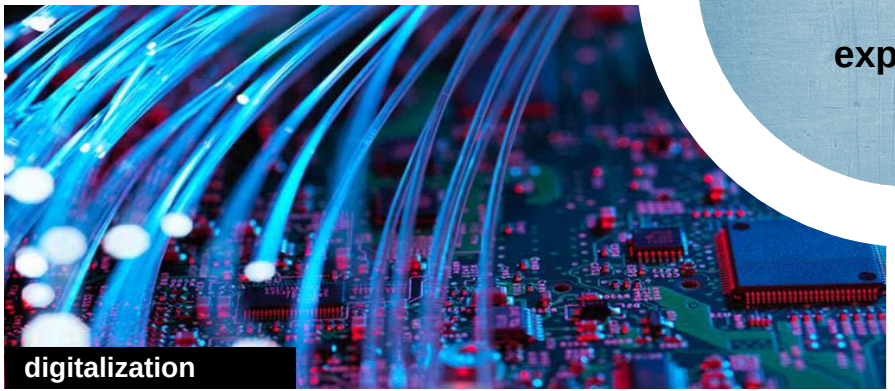
September 5, 2018
Pirdop, Bulgaria

Agenda

Keynote	Jürgen Schachler
Internal & External Growth	William Scotting
Future Complex Metallurgy (FCM)	Thomas Bünger
Lunch break	
Efficiency Improvement Program	Mehdi Al-Radhi
Sustainability at Aurubis	Kirsten Kück
FY 17/18 Outlook	Rainer Verhoeven
Closing remarks	Jürgen Schachler

Our metals for an innovative world: our copper will enable the trends of the future

Continuous growth in metal demand expected



Our Vision 2025

Mission

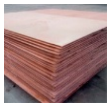
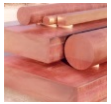
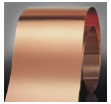
Responsibly transforming raw materials into value to provide metals for an innovative world.

Vision 2025

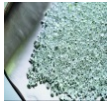
Passion for metallurgy. Metals for progress. Together with you.

Our strategic business triad: realizing our purpose

Aurubis holds a leading position in the copper value-added chain

	FY 2016/17	Position
Concentrate processing*	2,424,000 t	No. 2 worldwide
Copper scrap input	272,000 t	No. 1 worldwide
 Cathode output	1,156,000 t	No. 2 worldwide
Wire rod output	719,000 t	No. 1 worldwide
 Copper shapes output	190,000 t	No. 1 in Europe
 Flat rolled products and specialty wire output	230,000 t	No. 1 worldwide

* Custom smelter production

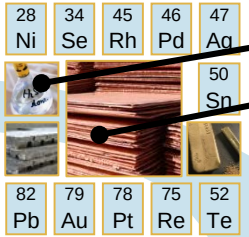
	FY 2016/17
Sulfuric acid output	2,364,000 t
Gold output	42 t
 Silver output	1,071 t

The key drivers of our value and earnings

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

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

Smelting and refining



Sulfuric acid

Copper premium

Further processing

Product surcharge

Metals for progress

Closing the loop

Scrap collectors

Consumers

Processors and end users

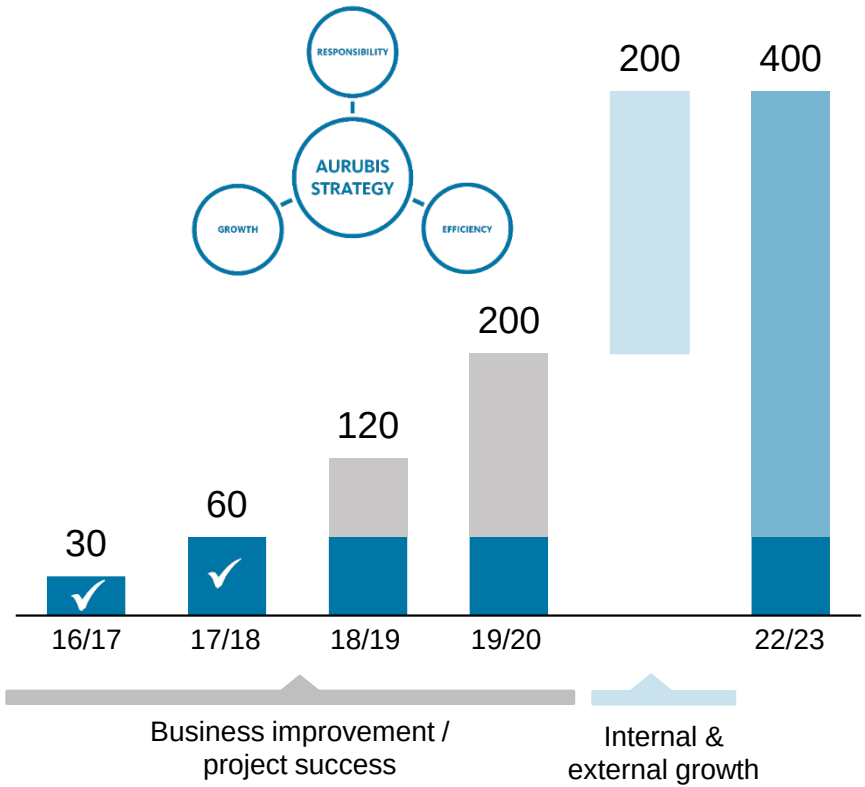
Solid balance sheet figures provide room for future growth

(operating IFRS)	6/30/2018 operating	6/30/2017 operating	Target
Profitability			
ROCE*	14.6 %	13.0 %	15 %
Capital structure			
- Equity ratio (equity / total liabilities)	51.2 %	50.9 %	> 40 %
Debt and interest coverage			
- Net financial liabilities / EBITDA**	0.1	0.1	< 3

* Rolling EBIT last 4 quarters
** Rolling EBITDA last 4 quarters

Our financial goal:
€ 200 + 200 million sustainable earnings improvement

(in € million)



Business improvement:

- Measures for 2017/18 have been identified and are being implemented
- We are currently fully on schedule
- All of the company's divisions are contributing to project success, including both production and the corporate functions.
- Possible deteriorating market conditions, as compared to reference year 2014/15, could have a counter-effect.

Internal & external growth

- Internal: FCM
- Deutsche Giessdraht

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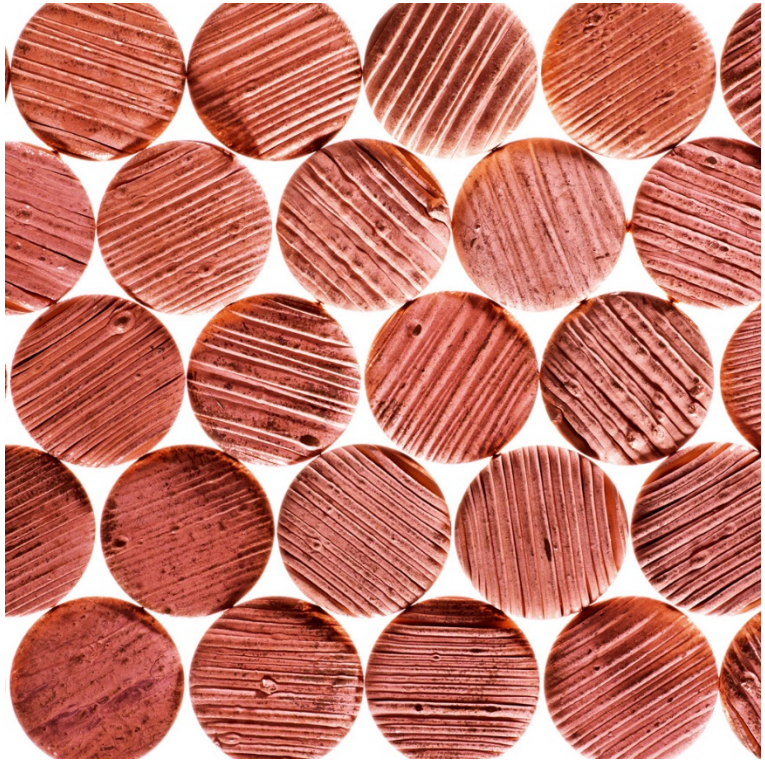
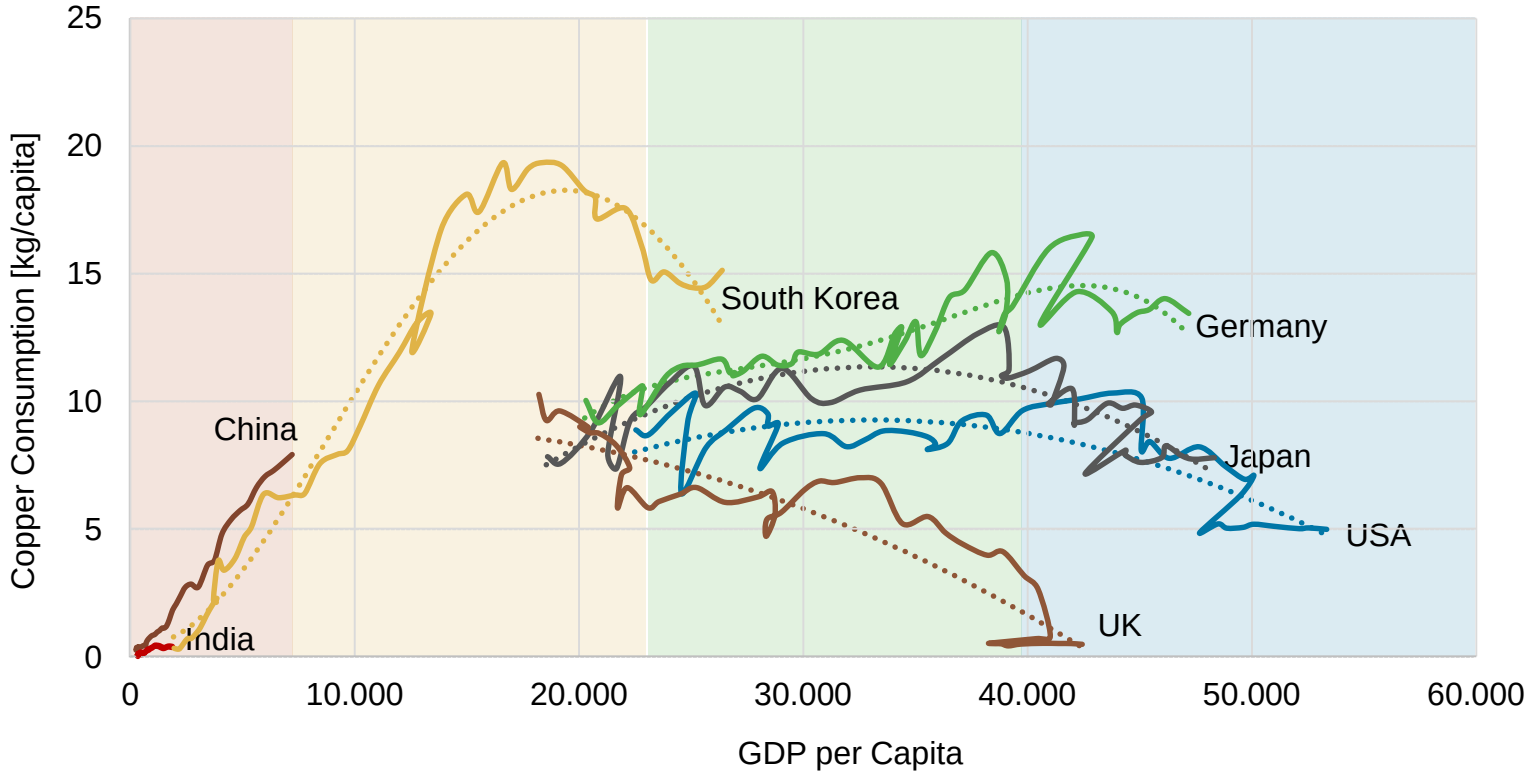


1. Market environment
2. Strategic initiatives
3. Conclusion

Metal demand depends on the stage of macro-economic development cycle and the GDP drivers on a regional and country level

Timeframe 1970 – 2017 (real GDP)

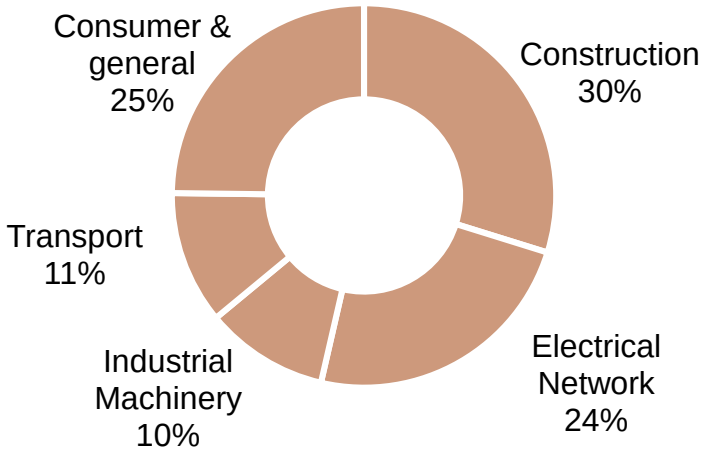


Source: CRU

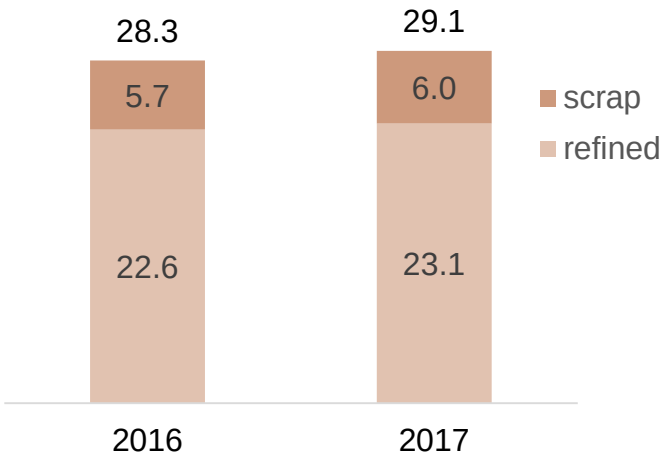
Copper demand sustainable over longer term due to late cycle consumption sectors

Global copper demand

Per consumption segment (2017)



Per year (in million t)

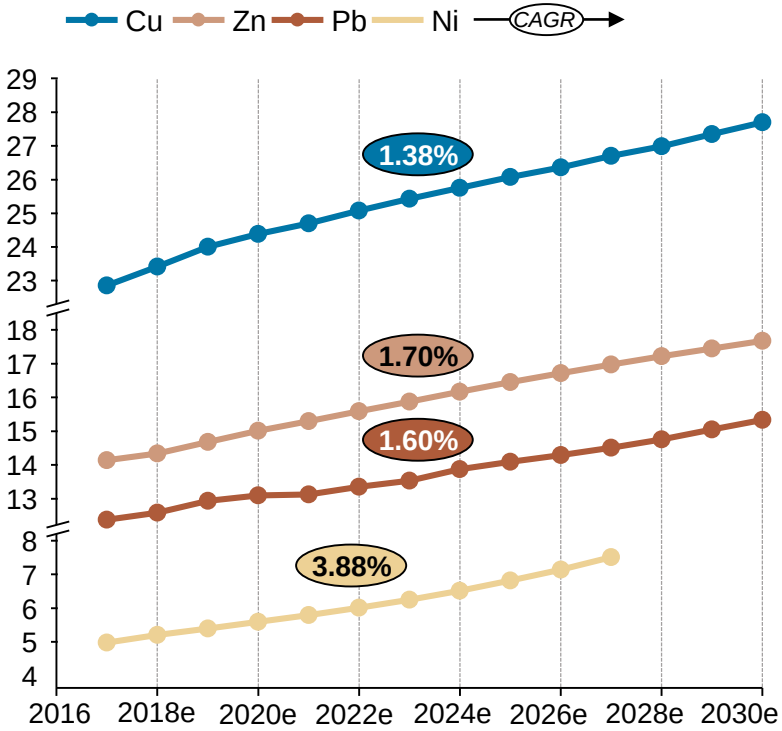


- Diversity of use enables longer term growth potential for copper
- Modernisation and replacement of early developmental phase construction and infrastructure
- Late cycle growth sectors, including automotive (shift to electric vehicles) and consumer goods (including air conditioning, electronics)

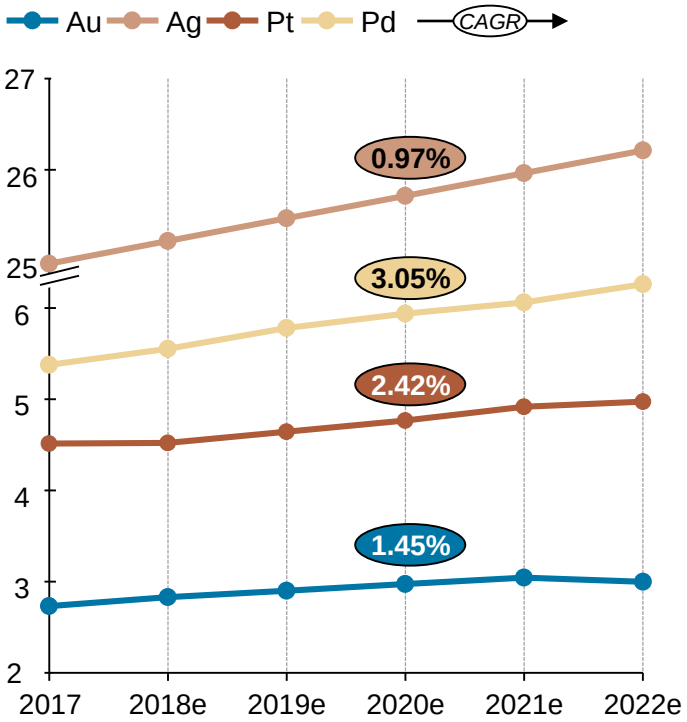
Source: Wood Mackenzie Copper Long Term Outlook 2Q2018

Demand for copper, other base metals and precious metals is forecast to have steady growth over the next decade

Demand for base metals – Cu, Zn, Pt & Ni
(in million t)



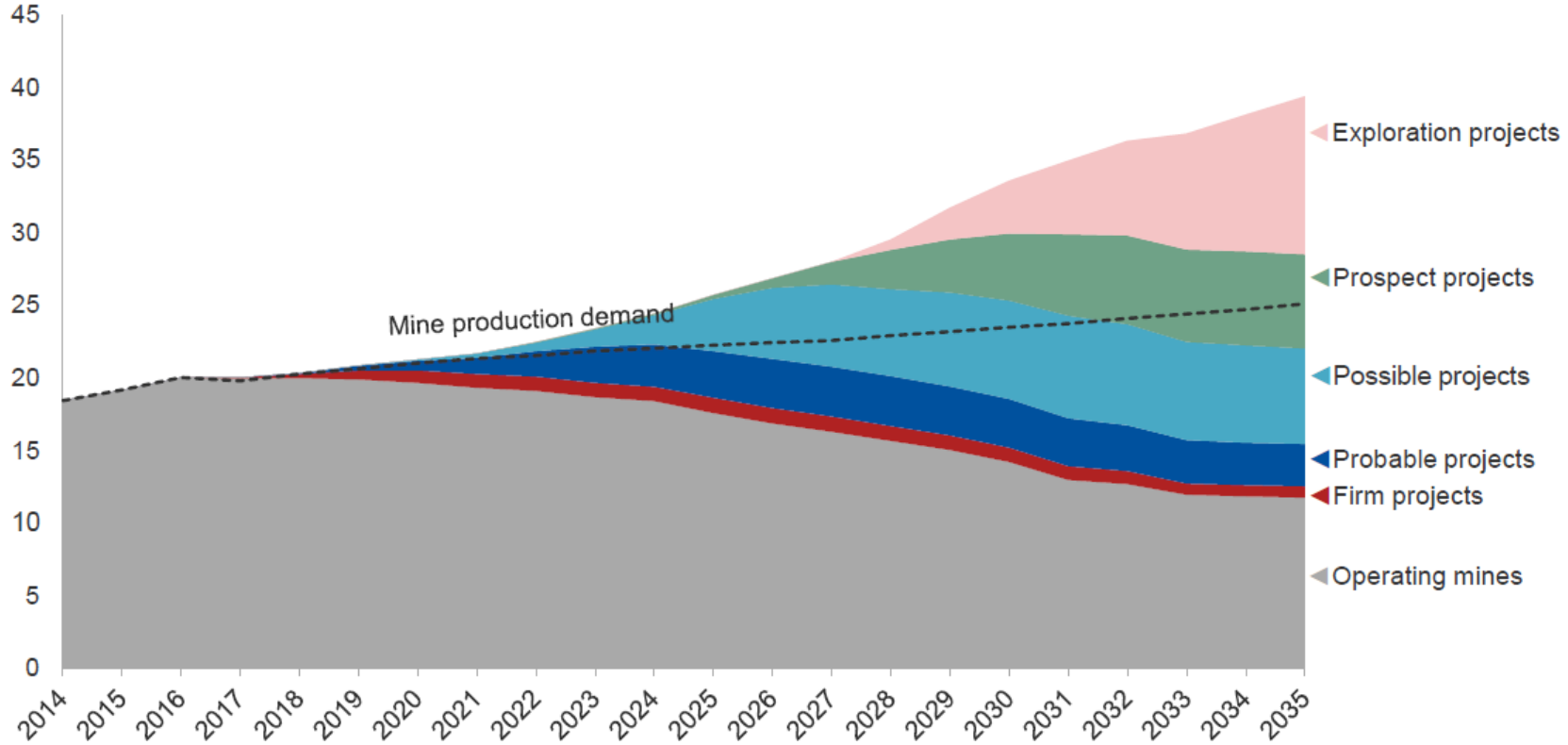
Demand for precious metals – Au, Ag, Pt & Pd
(in kt)



Source: Wood Mackenzie Copper, Zinc, Lead and Nickel Global Outlook 2Q2018, CRU Precious Metals Outlook June 2018

Uncommitted copper mine projects (and higher recycling) will be required to meet forecast demand over the next decades

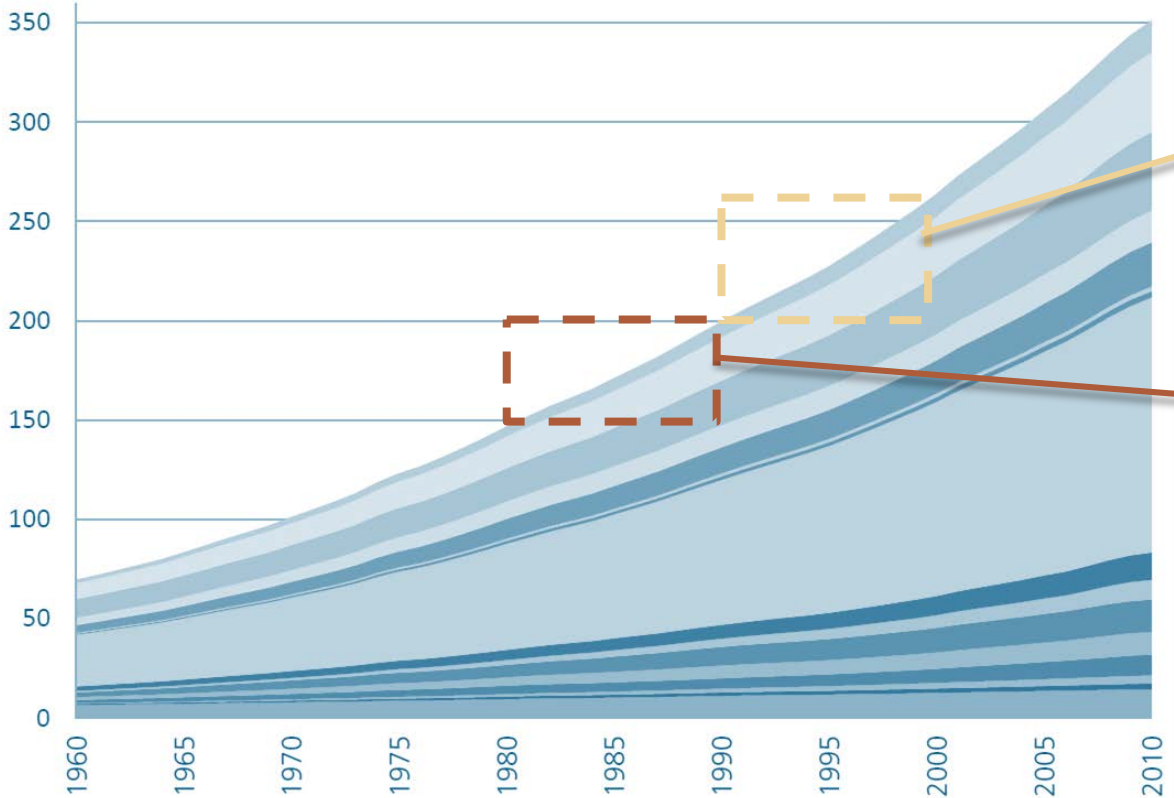
Forecast committed copper mine production and potential from uncommitted projects (in mt)



Source: CRU

Global copper scrap market volumes will increase over the next decades …

Copper in use (in million t)



Overall theoretical recycling potential in 2020-2030 of ~70 mill. t of copper content

Overall theoretical recycling potential in 2010-2020 of ~50 mill. t of copper content

Source: Fraunhofer ISI, Global Copper Flow Model; Aurubis

… and there will also be a shift in mix of the scrap towards more complex material

	CU content	Scrap category	Life cycle/trends
	1950 low 2015 high* *-> Trend for substitution*	No2 · Shredder · WEEE	» 60-80 years » Faster in China
	1990 ~9 kg/car 2015 ~25 kg/car	No2 · Shredder · WEEE	» 10-15 years » EV will have higher Cu in the future (~80 kg)
	2000 2015	No2 · Circuit boards · WEEE	» 2-4 years

* Increase of copper in buildings due to replacement of lead tubes, installation of central heating systems and substantial electricity supply (beginning 1970s)

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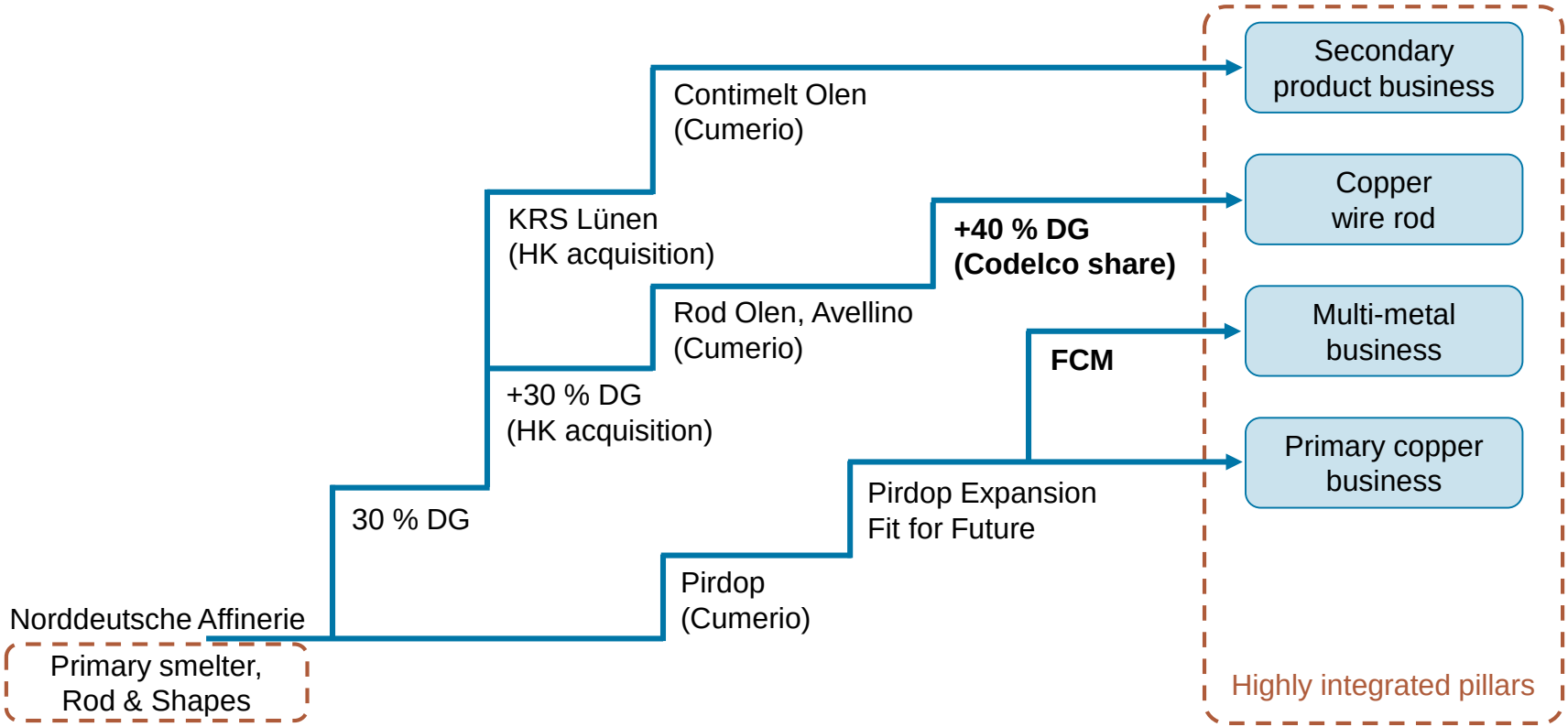
Aurubis growth focused on an integrated set of competencies

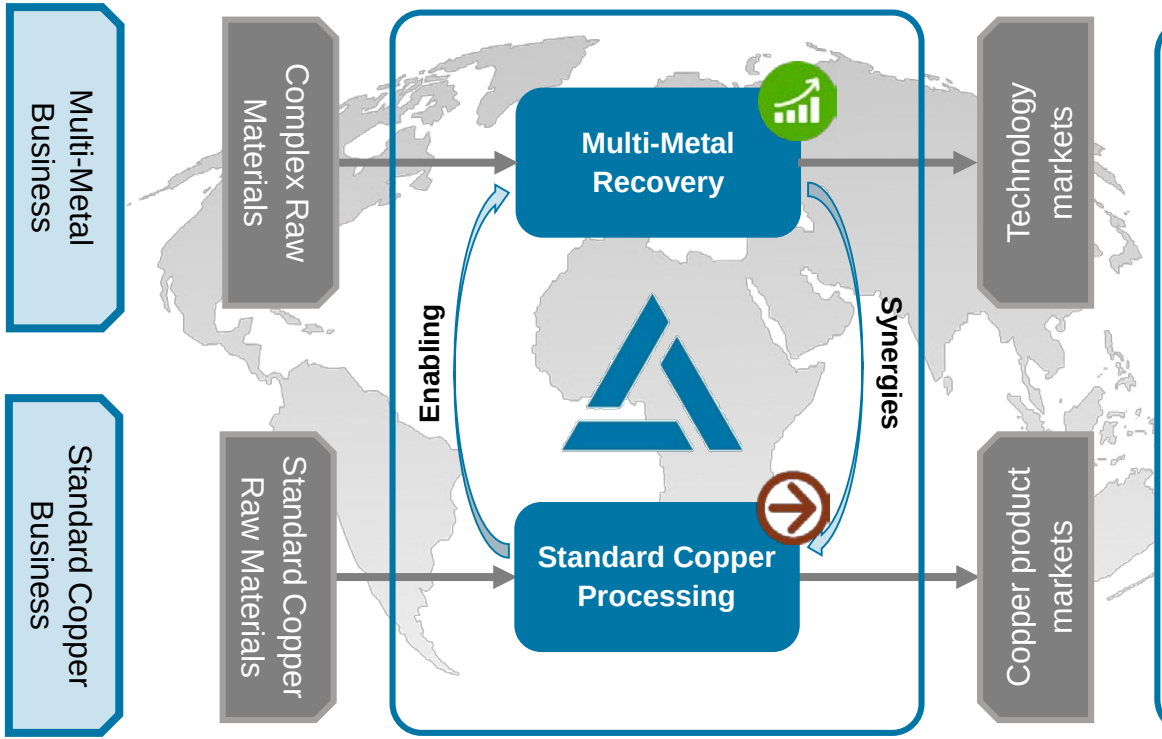
Aurubis Capital Market Day 2018

Aurubis Growth Staircase



* Excluding flat rolled business

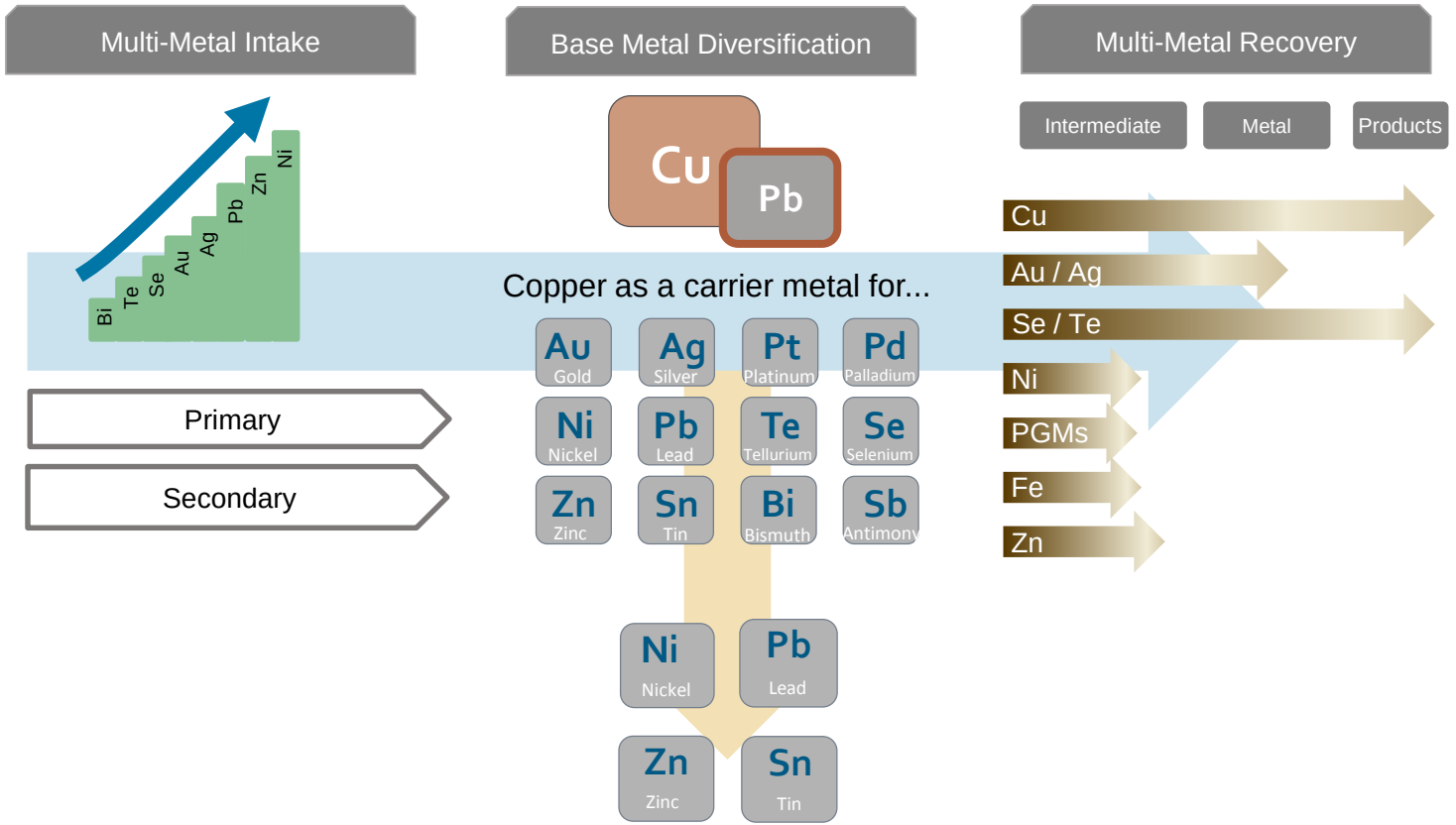
The core smelting and refining business is based on two interdependent pillars



Aurubis' strategic growth
- → Potential for differentiation
- → Focus on margin optimization

Aurubis base business
- → Limited differentiation potential
- → Focus on costs and efficiency

Aurubis' multi-metal approach will focus on increasing complex feed mix, metal recovery rates and the strong synergy of Aurubis' mixed Cu-Pb metallurgy



Project Future Complex Metallurgy (FCM): substantial step for Growth with multi-metal expansion

New facilities in Hamburg and Olen:

- Bath smelting furnace, as well as leaching and electro-winning plant
- Capex: around € 320 million (PFS)

Additional use of raw materials:

- 270,000 t of concentrates, recycling raw materials and smelter intermediates

EBITDA improvement:

- As of FY 2022/23: € 80 million (PFS)

Financials as per pre-feasibility study

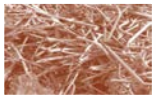
Aurubis flowsheet and multi-metal capabilities provide various future growth options

Aurubis
Capital Market Day 2018

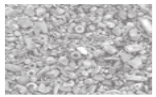
Raw Material Supply (Secondary Examples)

- collectors and recycling companies
- waste incineration, car shredder, etc.
- electronic and automotive industry (OEMs)
- EOL / consumer government / military
- chemical, oil and gas, etc. industry
- foundries and other PM refiners
- jewellery industry, dental labs

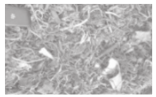
Copper scrap



Metallic shredder



Organic-containing shredder



PCBs

Bulk e-scrap

PM-bearing industrial waste

PM-containing prod. scrap

Future Options

Potential smelting operation

~70-90kt input of low-grade complex material

Pre-processing operation

~2kt high pm containing 2nd material

~7-8 kt e-scrap

Flowsheet Integration

Lünen

High-level Approach

Hamburg / Olen / Pirdop

FCM

Additional secondary smelter

Taking a “solutions” approach to grow in multi-metals

Aurubis Knowledge/Capabilities

Market

Processing

R & D

- Technology is a basis for our metallurgical know-how and a starting point for development of strong multi-metal flowsheet to maximize metal recovery from complex raw materials
- “Solutions” to differentiate, secure margins and mitigate cyclical effects
- Mix improvement due to capability to manage higher impurity levels

Mining Solutions for Complex Primary Raw Material Markets

Primary materials are becoming more complex, with a rising number of contained metal elements and lower primary metal contents

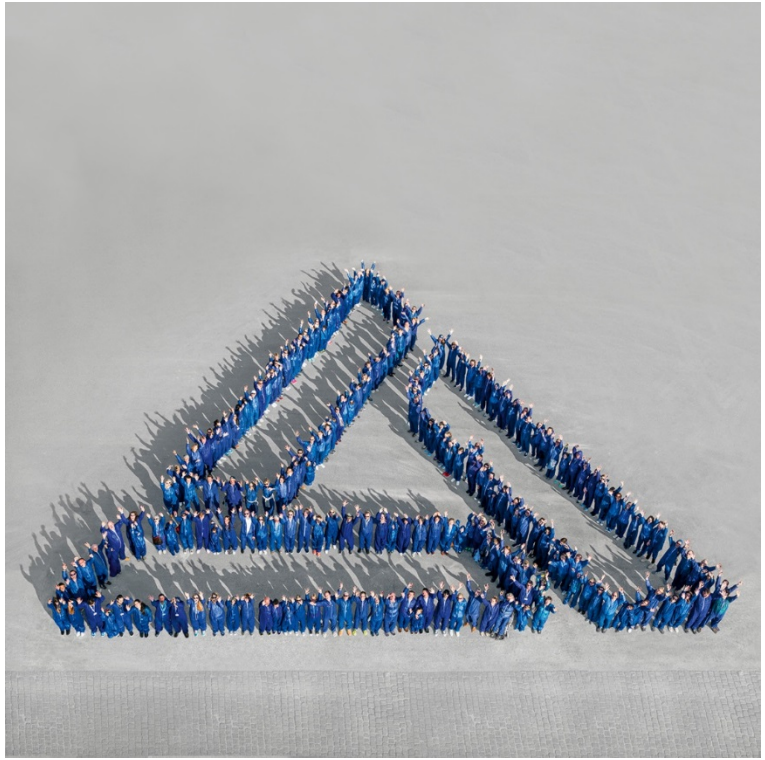
- Mine-specific processing solutions needed to unlock value
- Investments required in flowsheets
- Mine financiers require degree of confidence in offtake and margins

Industry Solutions with Focus on Recycling / Urban Mining

Global e-scrap and Cu scrap markets are expected to grow with increasing sustainability requirements from society, environmental and legislative perspective

- Development of closed-loop recycling solutions for industrial and end-of-life scrap together with industrial partners
- Focus on sampling, logistics, processing and certification

Agenda



1. Market environment
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Key messages

- A bright future for metal demand.
- Trends for sustainability and increasing complexity of supply chains.
- Aurubis business model is robust:
  - Built on knowledge and asset-based metallurgical, flowsheet and commercial capabilities that provide various options to differentiate and benefit from the macro drivers our sector faces.
  - Our focus on competitiveness in standard copper business complements our drive for multi-metals differentiation.
- Aurubis' footprint and capabilities provide a range of levers and options for delivery of growth:
  - FCM is a major strategic investment.
  - Development of a "solutions" approach based on our knowledge capabilities to provide a differentiated position to secure margins.

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Lunch break	
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Project Future Complex Metallurgy (FCM): substantial step for Growth with multi-metal expansion

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Financials as per pre-feasibility study

Future Complex Metallurgy at a glance

Objectives

- Securing the future viability of primary copper production ✓
- Optimizing throughput times, reducing working capital ✓
- Expanding the processing of complex raw materials ✓

in € million	Sept. 2017
Investment in plant/equipment	320*
Ø EBITDA (starting 2022/23)	80
Payback period	7.4 years

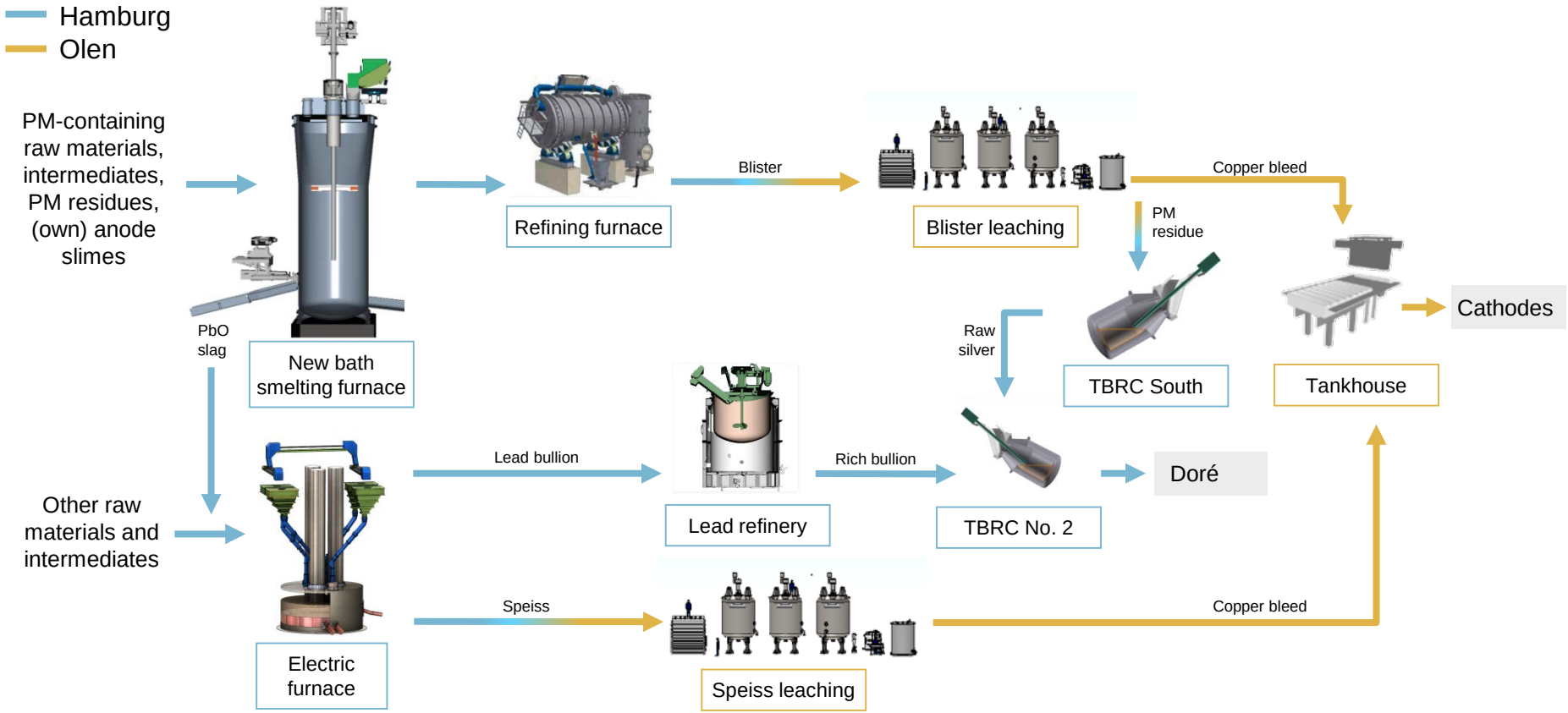
* Basis: figures based on experience with implemented Aurubis projects

- **Expansion of Hamburg site**
  - Acceptance & sampling (expansion)
  - Bath smelting furnace, phase separation furnace, wastewater treatment (new construction)
  - E-furnace RWN, lead refinery, TBRC2, contact plant (modification)

  Total investment: about € 220 million
- **Reorientation of Olen site**
  - LEW (new construction, modification of tankhouse)
  - Electrolytic treatment (new construction)

  Total investment: about € 100 million
- **Permits:**
  - issued

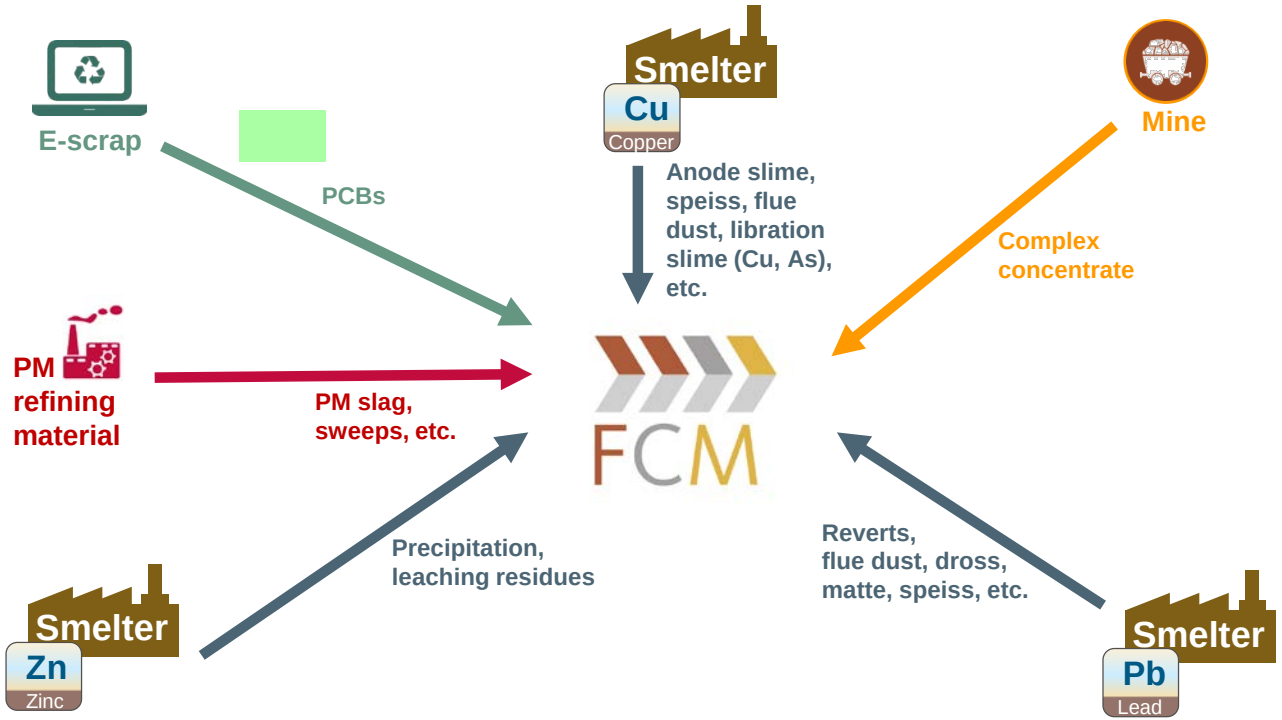
The complex flowsheet offers flexibility in feed material and accelerates metal flow



Aurubis is expanding its potential market portfolio and strengthening its position on the purchasing markets

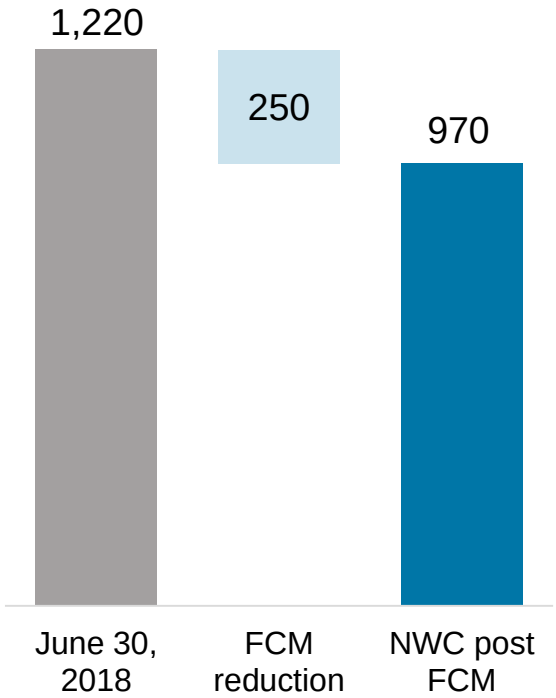
Market Cluster:

- Complex concentrate
- Smelter intermediates
- PM refining material
- E-scrap



The accelerated metal flow allows for a substantial net working capital gain

Aurubis Group net working capital (in million €)



- Decrease in net working capital is mainly stock-driven
- FCM enables a significant reduction (60 %-70 %) of throughput times in terms of days in stock compared to status quo (PM from 137 days to 40 (Au) or 53 (Ag) days)
- Net cash impact from net working capital reduction is estimated at € +250 million

Summary

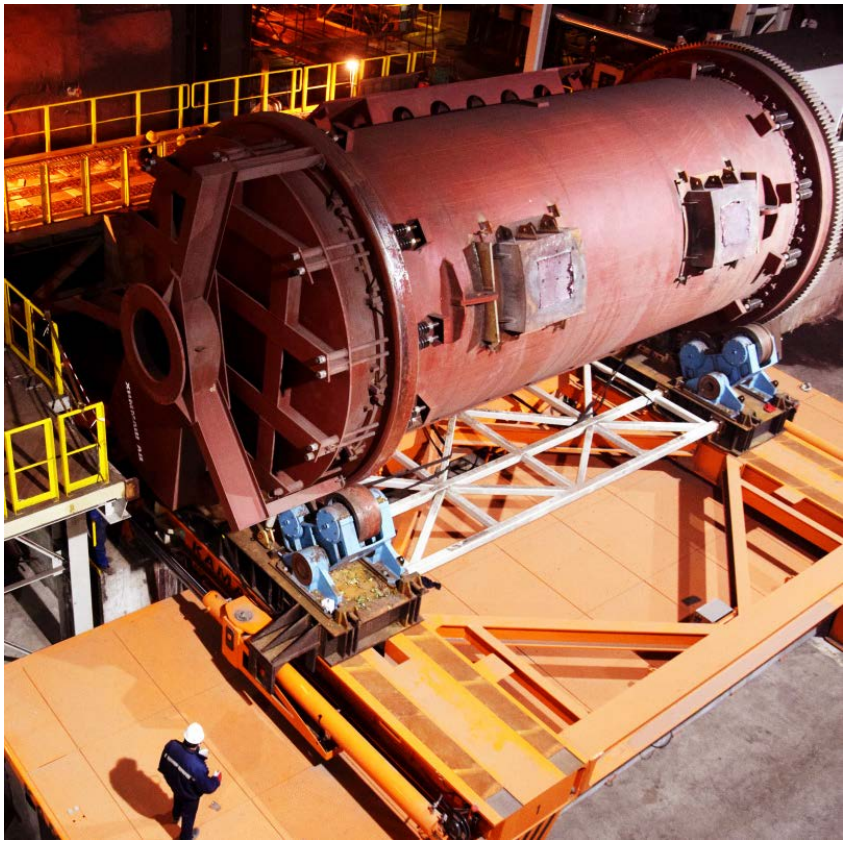
- With FCM we will serve a broader range of several kinds of primary and secondary material streams and gain access to new market segments
- Our metallurgical and process expertise was the basis for developing the FCM flowsheet as an answer to the growing supply of various complex input materials
- Through proactive technical marketing, we will gain market access and acquire new customers, especially for smelter intermediates
- We will further develop and expand our market share for PCBs by optimizing our pre-processing and sampling capabilities and by enabling additional projects
- FCM will lead to a significant, sustainable increase in Aurubis' results starting FY 2022/23
- Very attractive return and payback period
- Enhanced competitiveness

FCM is the perfect fit to our strategy due to more complex materials and increased precious metal content, for which we forecast good growth rates in the coming years

Lunch Break

Please be back at 2:00 p.m.

Agenda



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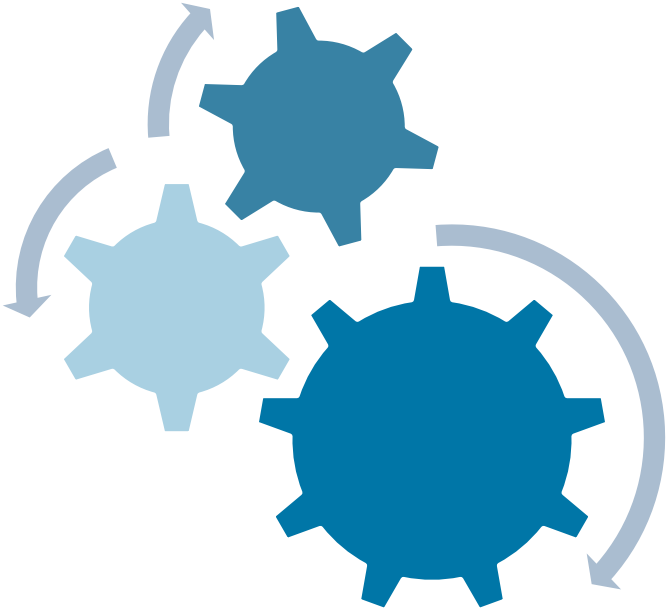
Our strategic business setup: Realizing our purpose

Our strategic focus Efficiency: Optimization and continuous improvement in all areas

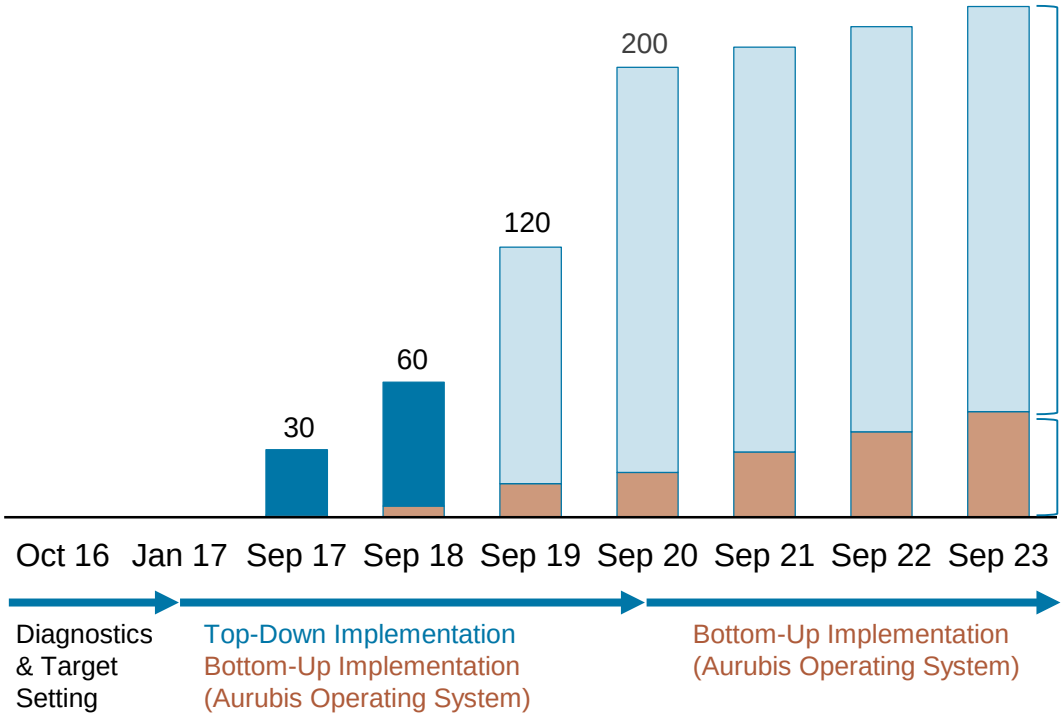
Efficiency targets



- **Project success of more than € 200 million until FY 2019/20 (Top-Down Approach)**
- Standardization of best practices, transparency of operational losses, empowerment of our staff (AOS Approach)
- Installation of a system for continuous improvement that generates additional result improvements per anno after FY 19/20 (AOS Approach)

Sustainable increase in efficiency and results through our Business Improvement Project

Project success (in million €)*



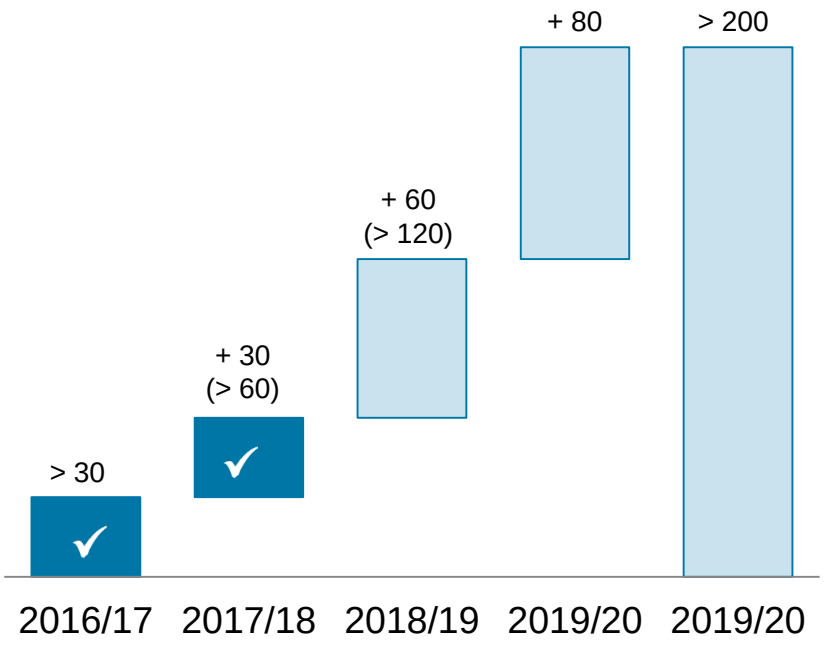
Based on diagnostic findings, implementation is pushed through organization top-down

Based on detailed performance indicators and loss recordings, implementation will be pushed through the organization bottom-up

* Based on baseline conditions

€ 200 million Efficiency Improvement Program fully on schedule

(in € million)



Base year: 2014/15

- Project target of additional € 30 million will be achieved for FY 2017/18
- Measures for 2018/19 are under implementation or under preparation
- All of the company's divisions are contributing to project success, including both production and the corporate functions

Aurubis Operating System AOS – Sites

Target

» Installation of an Improvement Program at all sites identifying losses in production & maintenance of Aurubis, removing them step by step in teams, and thus becoming more and more effective and efficient.

» Staff empowerment across all levels and further development of leaderships skills.

Implementation start:

Hamburg (pilot)	- August 2016
Pirdop	- February 2017
Olen	- January 2018
Lünen	- April 2018
Avellino	- June 2018
Emmerich	- planned January 2019

Aurubis Operating System AOS – Transversals

Target

» Installation of an Improvement Program across all transversal functions identifying losses in the processes and organization of Aurubis, removing them step by step in teams, and thus becoming more and more effective and efficient.

» Staff empowerment across all levels and further development of leaderships skills.

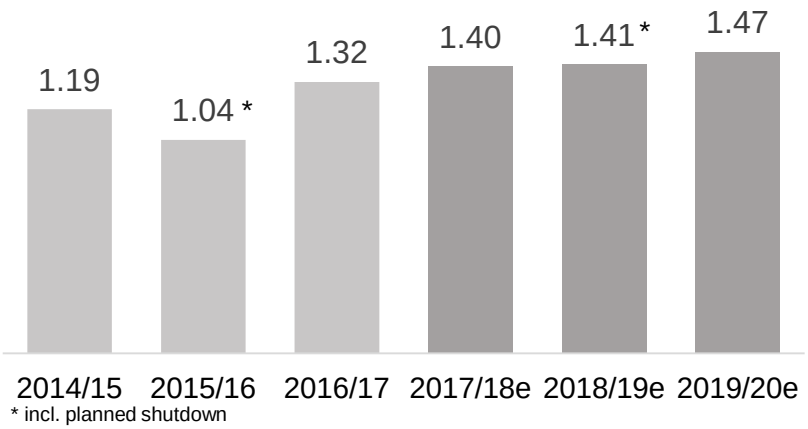
Implementation start:

HR (pilot & forerunner)	-	March 2017
SCM	-	March 2018
Engineering	-	March 2018
IT	-	planned Jan. 2019
RD&I	-	planned May 2019

Efficiency improvement activities at Aurubis Bulgaria

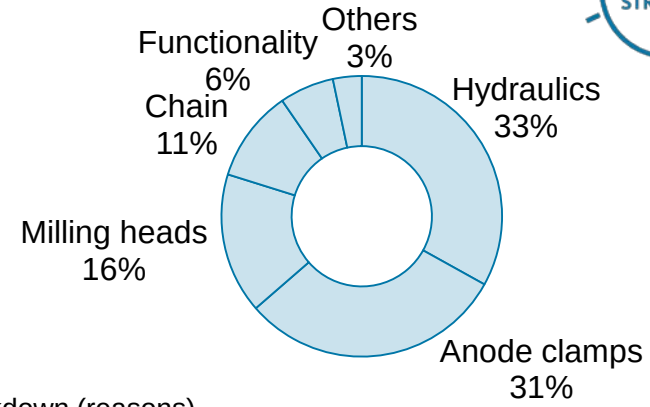
Concentrate throughput in the Pirdop smelter

Concentrate throughput (in million t)

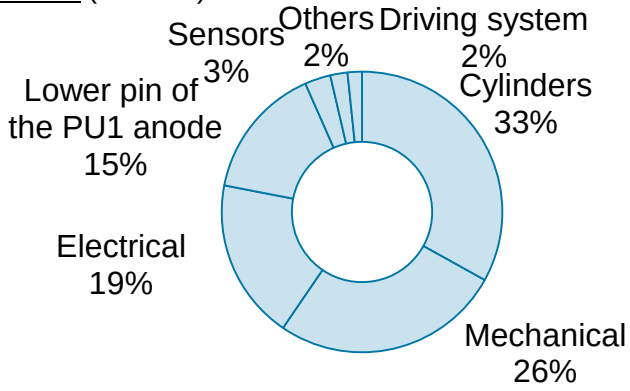


* incl. planned shutdown

Breakdown (machine area)



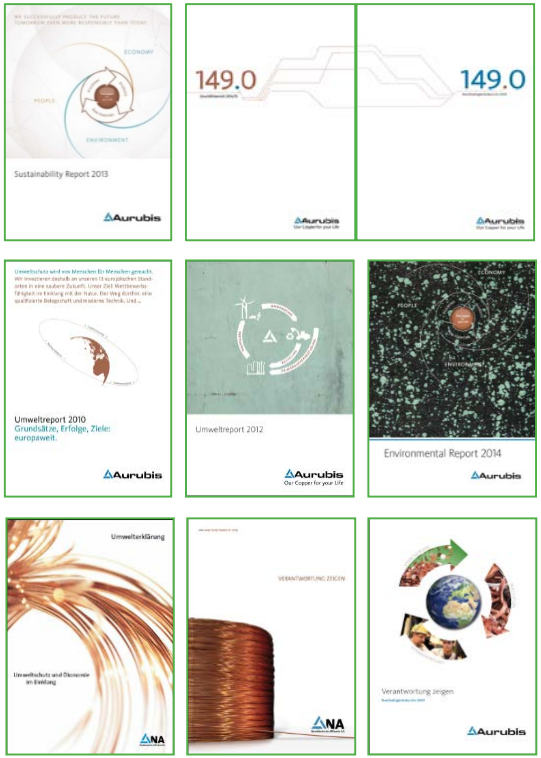
Breakdown (reasons)



Agenda

Keynote	Jürgen Schachler
Internal & External Growth	William Scotting
Future Complex Metallurgy (FCM)	Thomas Bünger
Lunch break	
Efficiency Improvement Program	Mehdi Al-Radhi
Sustainability at Aurubis	**Kirsten Kück**
FY 17/18 Outlook	Rainer Verhoeven
Closing remarks	Jürgen Schachler

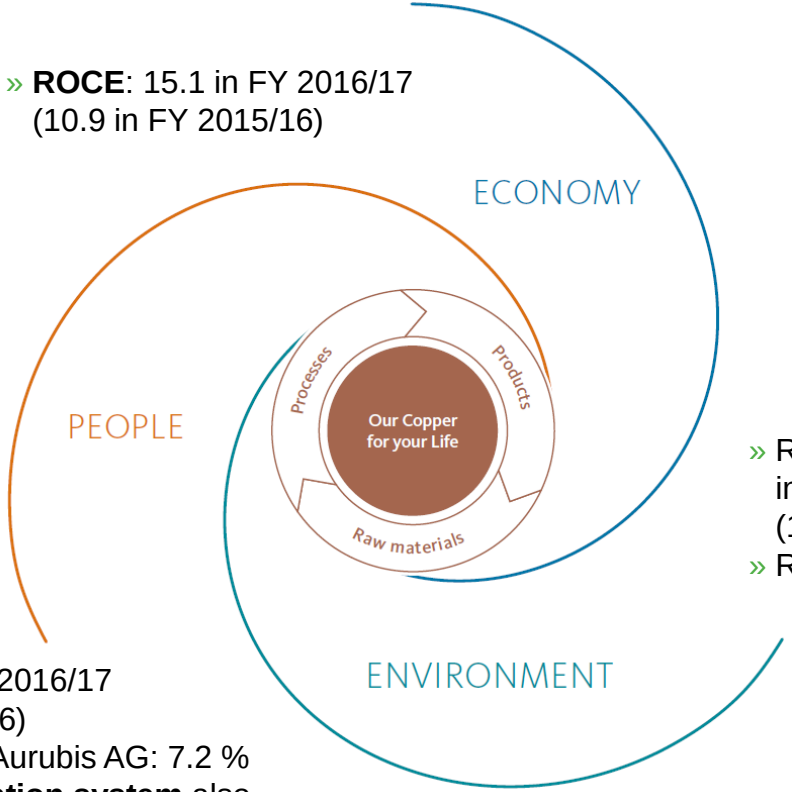
Aurubis drives sustainability forward



Since 2002	Annual Aurubis AG Environmental Reports
2008	First Aurubis AG Sustainability Report
Since 2009	Group Sustainability Report (every two years)
Since 2010	Group Environmental Report (every two years)
2013	**Sustainability Strategy 2013-2018**
2014	4th Sustainability Report, Sustainability Strategy **Commitment to UN Global Compact**
2015	4th Group Environmental Report
2016	5th Sustainability Report, central theme of Annual Report
2017	New **CSR Guideline** effective
2018	Communication on Progress for **UN Global Compact**
	Sustainability Strategy 2018-2023
	Aurubis **Annual Report** including **non-financial statement** (annually in Dec.)

Sustainability performance during the reporting period

» **ROCE**: 15.1 in FY 2016/17
(10.9 in FY 2015/16)



» **LTIFR**: 4.8 in FY 2016/17
(4.6 in FY 2015/16)
» **Training rate** at Aurubis AG: 7.2 %
» **Dual education system** also in Pirdop

» Reduction of **CO_2 emissions** (direct and indirect): 1.63 million t in 2017
(1.67 million t in 2016)
» Reduction of **specific emissions**
» **SO_2**: 4.9 kg/t Cu in 2017
(5.1 in 2016)
» **Dust**: 56 g/t Cu in 2017
(60 in 2016)
» **Metal in water**: 1.0 g/t Cu in 2017
(1.1 in 2016)

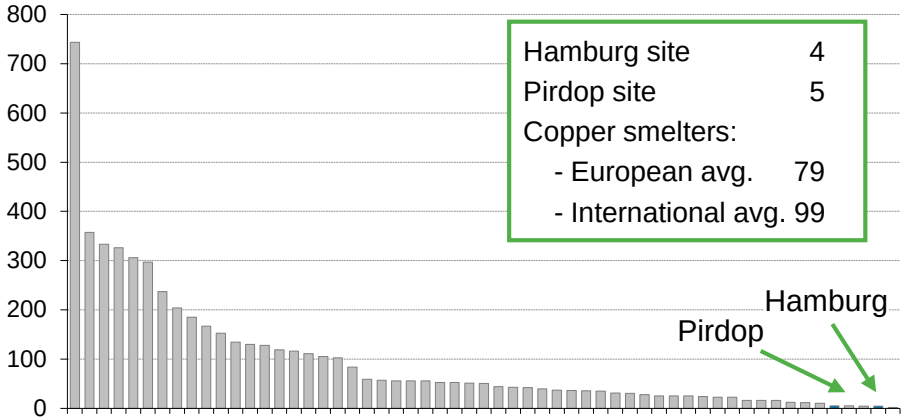
Continuous reduction of environmental impact

- Outstanding success in environmental and climate protection
- One of the most environmentally friendly copper producers in the world today

Specific emissions and usage
(in t/t of copper output)

	Change 2000-2017
SO_2 emissions (in kg/t)	- 86 %
Dust emissions (in g/t)	- 96 %
Metal emissions in water (in g/t)	- 87 %
Drinking water consumption (in m^3/t)	- 40 %
CO_2 emissions (in t/t)	- 40 %

SO_2 emissions of copper smelters
(in kg SO_2 per t of copper output)



Source: Wood Mackenzie 2018/certified data, Aurubis

Sustainability as integral part of the Group strategy

VISION 2025 **Ps** Passion for metallurgy

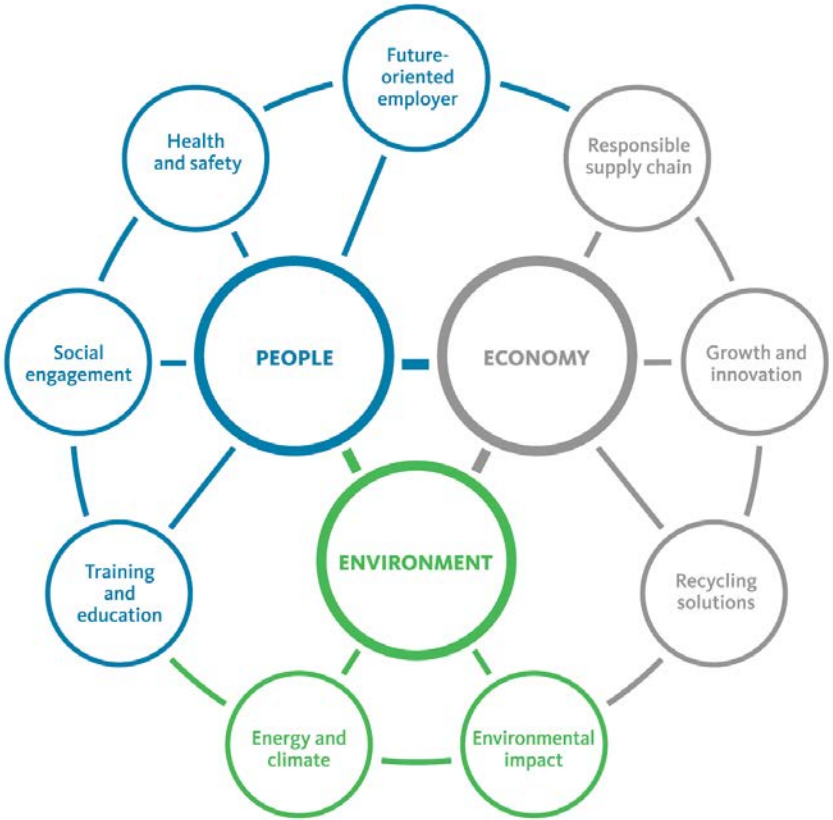
VISION 2025 **Pg** Metals for **progress**

VISION 2025 **Tg** **Together** with you

Mission:
Responsibly transforming raw materials into value to provide metals for an innovative world.

Sustainability with a focus on economy, environment, and people

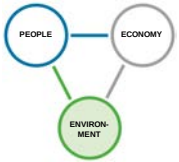
Aurubis Sustainability Strategy



- 2018-2023
- Balance of economy, environment, people
- 9 fields of action
- 9 targets
- 27 measures

Sustainability Strategy – Example for Environment

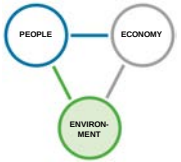
Relevant action area energy and climate



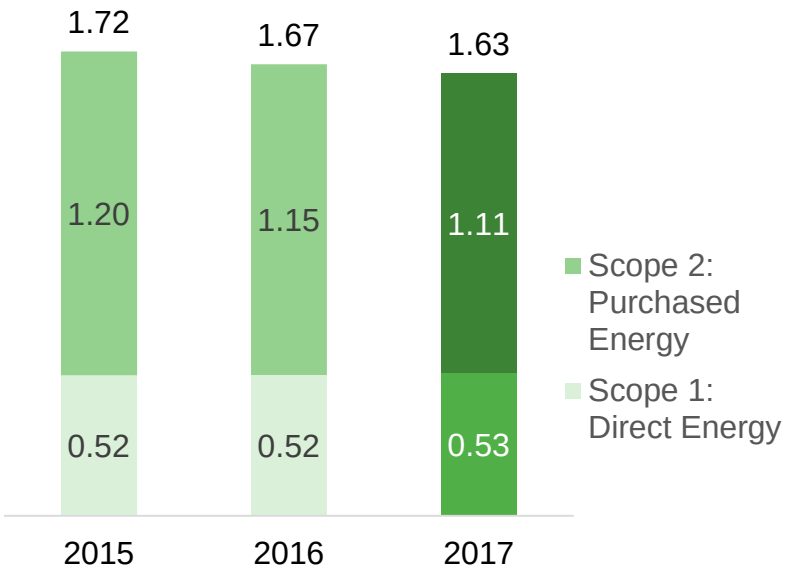
Creating value – preserving the environment

- **Target:** Aurubis aims to further increase the energy efficiency within the Group and to save CO_2 emissions.
- **Key measures:**
  - Introducing a Group-wide energy management standard (ISO 45001)
  - Increasing flexibility in electricity purchasing
  - Implementing further energy efficiency projects such as industrial heat extraction
  - Analyzing the requirements for new investments in relation to the German Climate Change Plan 2050 (in line with the Paris Climate Agreement)
- **KPI:**
  - CO_2 emissions

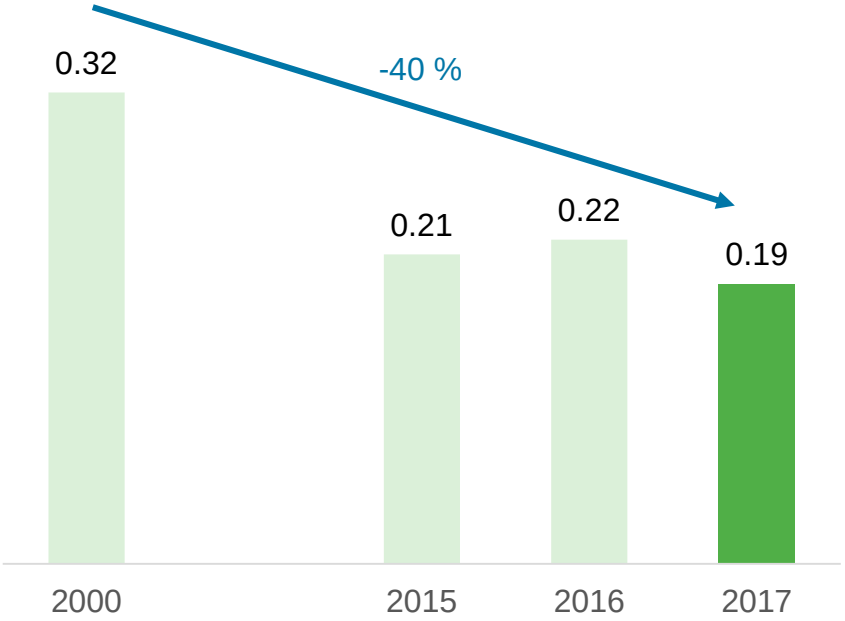
We steadily work towards further progress in reducing CO_2 emissions



CO_2 emissions
(direct and indirect within the Group, in million t)

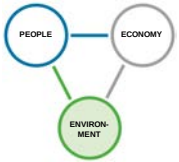


Specific CO_2 emissions from fuel
(in t/t of copper output*)



** Primary and secondary copper production at Hamburg, Lünen, Olen, and Pirdop*

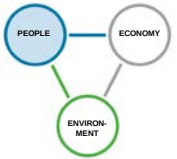
Flagship project: CO_2-free industrial heat for HafenCity East



- **Energy-efficient heat** for HafenCity East in Hamburg
- **Heat extraction line 1 (first stage):** ca. 160 million kWh per year (20 MW), equivalent to the heat requirements of about 8,000 four-person households
- **Investment from Aurubis:** ca. € 21.7 million in the facilities and pipeline
- **Investments of partner, enercity:** ca. € 21 million in the pipeline and replacement heating plant
- **Start:** October 2018
- **CO_2 reduction of over 20,000 t annually**
- Contribution to the local heat transition in Hamburg and **flagship project** of the German Energy Agency (dena)

Sustainability Strategy – Example for People

Relevant action area health & safety

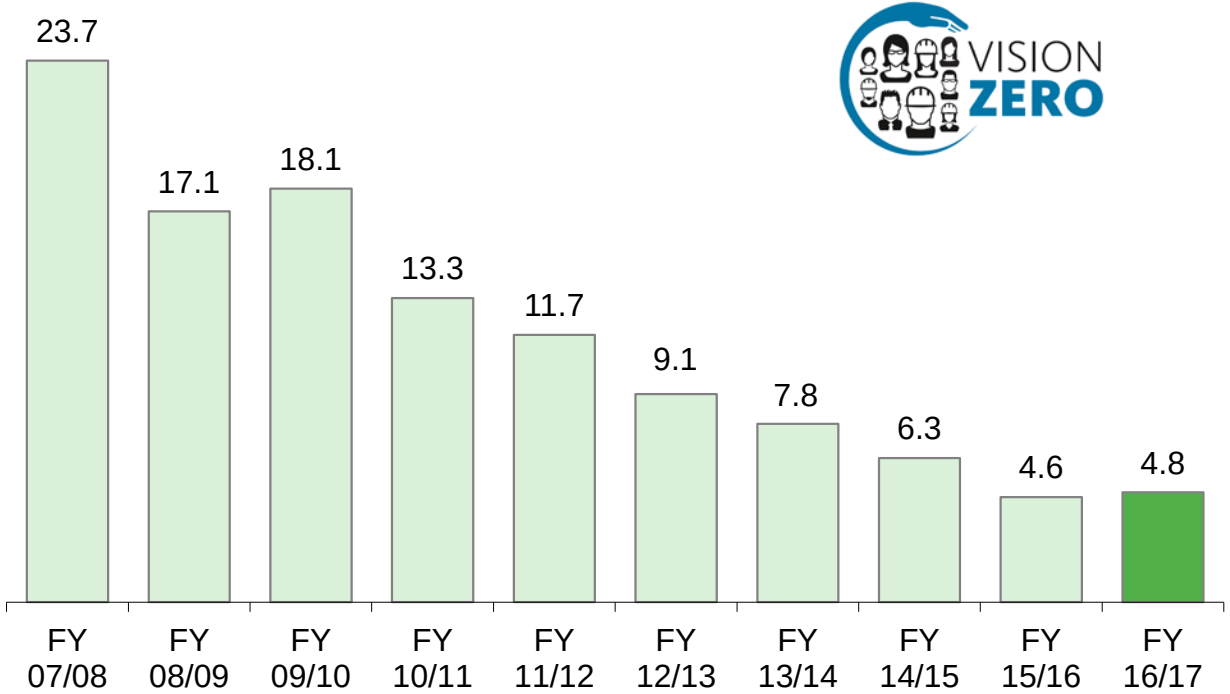


Encourage commitment – protect health and safety

- **Target:** The area of occupational safety and health protection will be further strengthened; work-related accidents, injuries, and illnesses should be avoided.
- **Key measures:**
  - Preparing to introduce a Group-wide health and safety standard (ISO 45001)
  - Introduction of group-wide, behavior-based safety
- **KPI:**
  - LTIFR (on-the-job accidents with at least one full shift lost time)

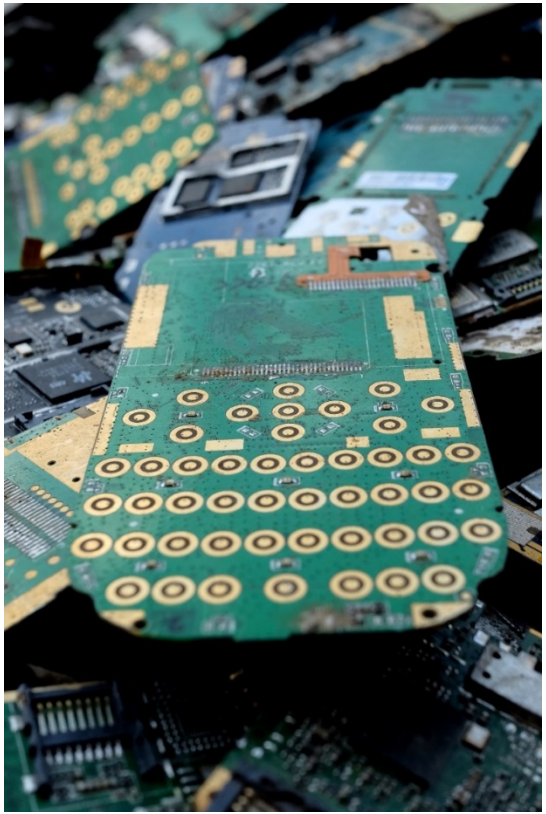
Safety is fundamental to our business

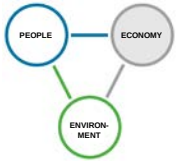
LTIFR$_{(1\text{-}n)}$: Lost Time Injury Frequency Rate
(Incidents/accidents with loss of time of one complete shift or more, per million h worked)



Sustainability Strategy – Example for Economy

Relevant action area recycling solutions





Complex processes – innovative solutions

- **Target:** In the area of recycling, Aurubis intends to increasingly use complex secondary raw materials and to produce additional metals in addition to copper.
- **Key measures:**
  - Increasing the volume of complex recycling materials sourced
  - Establishing and developing closing-the-loop systems
  - Analyzing market conditions and future opportunities for sustainable products
- **KPIs:**
  - Direct sourcing of complex recycling materials from collection points
  - Closing-the-loop systems with direct and indirect product customers

Main sustainability ratings & initiatives

CDP
DRIVING SUSTAINABLE ECONOMIES

Best Newcomer (2015)
MDAX Leader (2016)
Score B (2017)

Corporate Responsibility Prime
rated by ISS-oekom

oekom research: Prime (2017)

2018 CSR Rating GOLD ecovadis

SUSTAINALYTICS

68 von 100 (2018)

UN GLOBAL COMPACT
WE SUPPORT

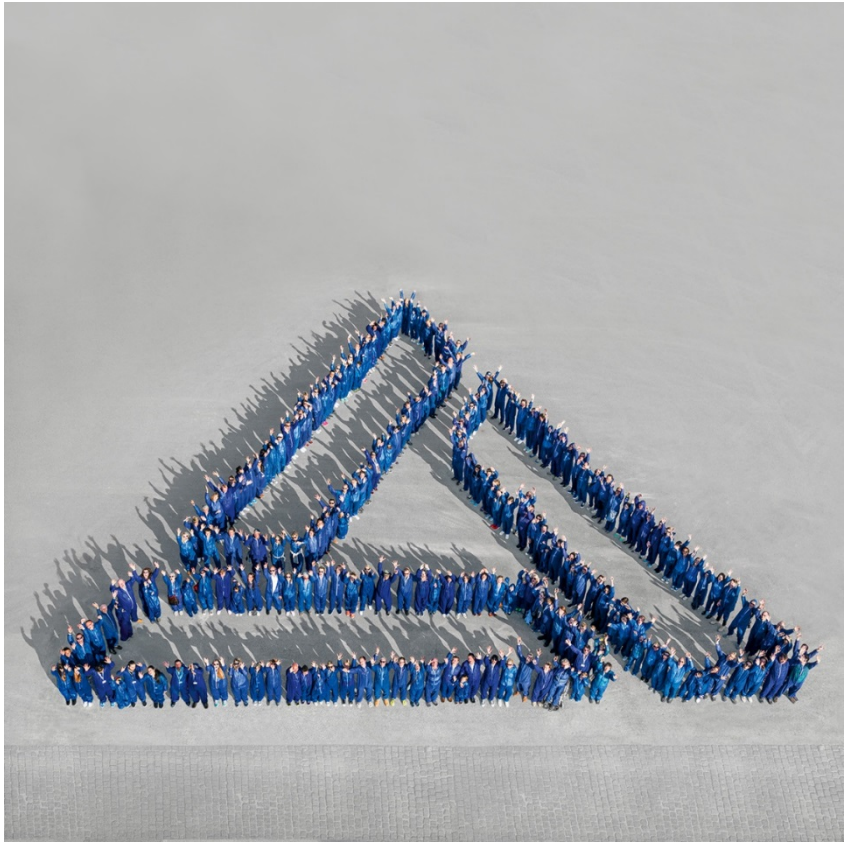
RESPONSIBLE CARE®
OUR COMMITMENT TO SUSTAINABILITY

MSCI

AA (2018)

Smelter and Refiner List

Agenda



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Lunch break	
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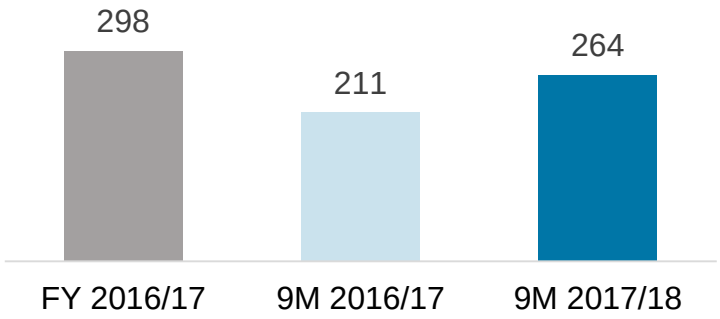
Sustainability at Aurubis	Kirsten Kück
FY 17/18 Outlook	**Rainer Verhoeven**
Closing remarks	Jürgen Schachler

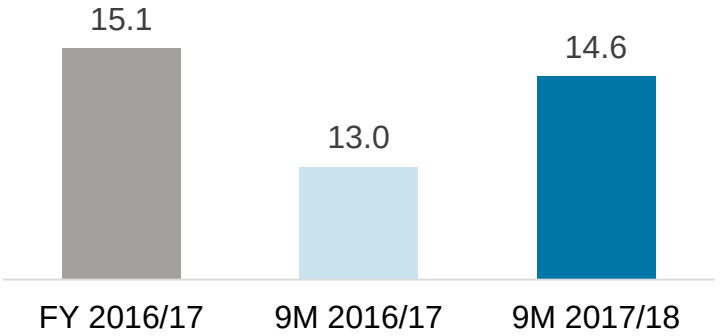
EBT and ROCE 9 months year-on-year considerably improved, cash flow still lagging

Aurubis
Capital Market Day 2018

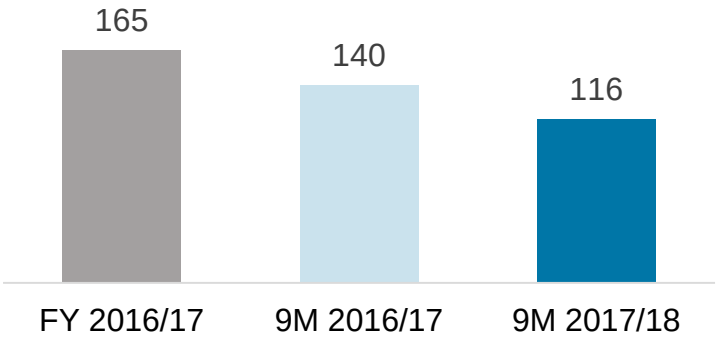
Operating EBT (in million €)



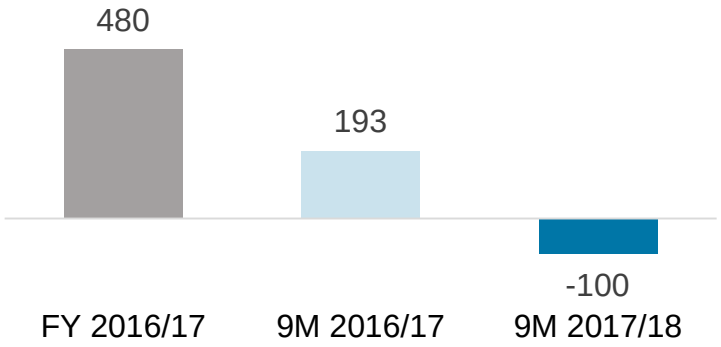
Operating ROCE (in %)



Capital expenditure (in million €, incl. finance leases)



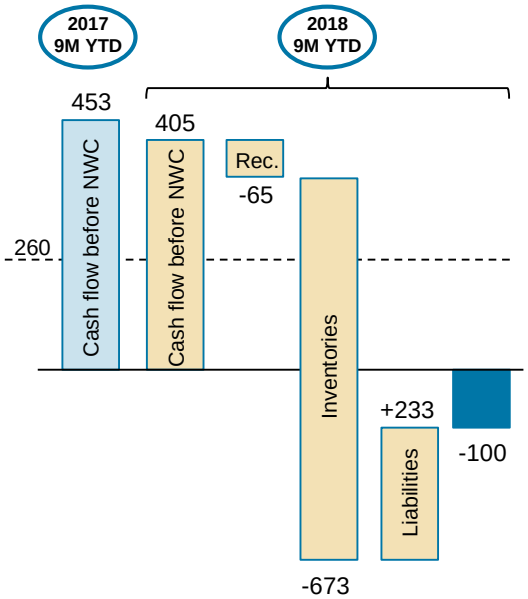
Net cash flow (in million €)



Cash flow from Operations strongly influenced by temporary increase in intermediate products

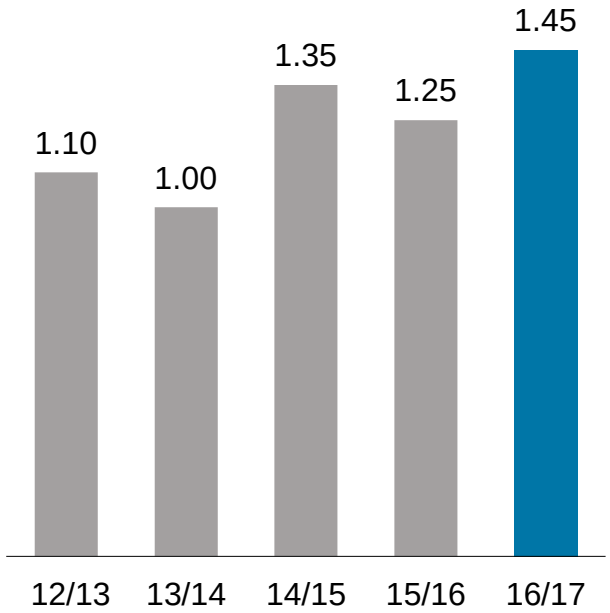
- The cash flow before the change in net working capital was **significantly positive** and was in line with previous year.
- The high inventory build-up was only partially compensated by a build-up in trade accounts payable. This inventory increase was the result of
  - High inventories of precious metal-bearing (especially gold-bearing) intermediates
  - High deliveries of precious metal-rich concentrates, which generally require several months to process
  - Increased anode inventories to make up for scheduled shutdowns in anode furnaces
  - Increased copper product inventories due to scheduled summer shutdowns in the rod plants

Consolidated cash flow statement
(in million €, IFRS)

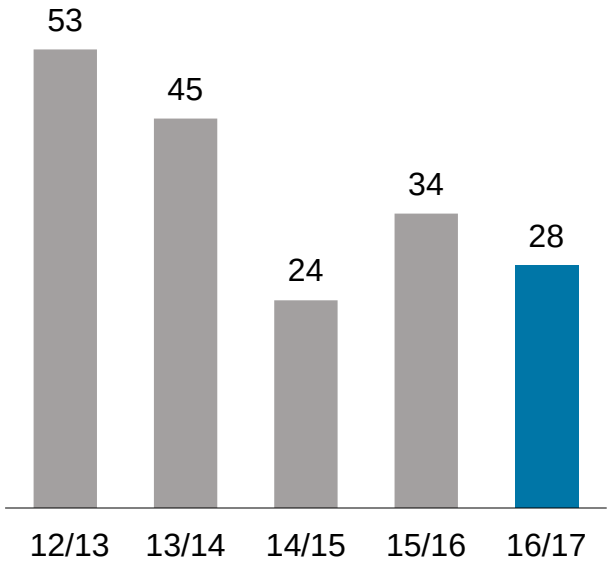


2016/17 dividend payout of € 1.45

Aurubis dividends (in € per share)



Payout ratio on the basis of operating consolidated results (in %)



Planned major shutdowns in the next 3 years

Status: August 2018 (preliminary)

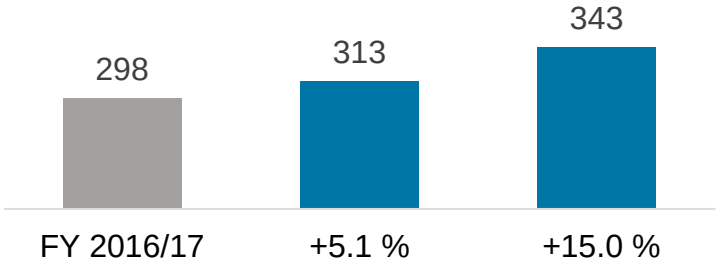
	FY 2018/19	FY 2019/20	FY 2020/21
Hamburg		› Boiler repair/inspection Oct./Nov. 2019 EBT effect ca. € 30 million	› Anode furnace Apr. 2021 EBT effect ca. € 8 million
Pirdop	› Boiler repair/inspection (already announced) May/June 2019 EBT effect ca. € 12 million		
Lünen	› KRS (regular) March 2019 EBT effect ca. € 5 million › Anode furnace (regular) Nov./Dec. 2018 EBT effect ca. € 3 million	› KRS (regular) Mar./Apr. 2020 EBT effect ca. € 5 million	› KRS (regular) Apr. 2021 EBT effect ca. € 5 million › Anode furnace (regular) Nov./Dec. 2020 EBT effect ca. € 3 million

Forecast for operating EBT & ROCE 2017/18 confirmed

For FY 2017/18, we expect **a moderately higher** operating EBT for the Aurubis Group compared to the 2016/17 reporting year.

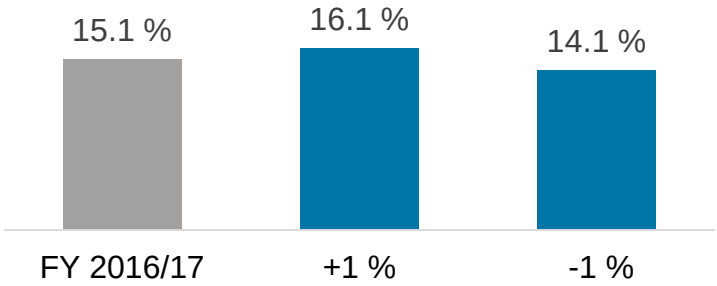
Aurubis definition for a qualified comparative forecast	
± 0 to 5 %	At prior-year level
± 5.1 to 15 %	Moderate
> ±15 %	Significant

Consensus per July 19, 2018: € 337 million (compiled by Aurubis)



For FY 2017/18, we expect an operating ROCE **at the prior-year level** compared to the 2016/17 reporting year.

Aurubis definition for a qualified comparative forecast	
± 0 to 1	At prior-year level
± 1.1 to 4	Slight
> ±4	Significant



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Capital Market Day 2018

September 5, 2018
Pirdop, Bulgaria

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Financial calendar

» Annual Report 2017/18	12/11/2018
» Quarterly Report First 3 Months 2018/19	2/13/2019
» Annual General Meeting	2/28/2019
» Interim Report First 6 Months 2018/19	5/15/2019
» Quarterly Report First 9 Months 2018/19	8/8/2019
» Annual Report 2018/19	12/11/2019

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.