Aurubis AG - Climate Change 2020

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Aurubis AG is the world's leading provider of non-ferrous metals. The company processes complex metal concentrates, copper scrap and metal-bearing recycling materials into metals of the highest quality. Among other items, Aurubis produces more than 1 million t of copper cathodes per year, and from them diverse copper products, such as wire rod and shapes, rolled products, strip, and specialty wire and profiles made of copper and copper alloys. In addition, Aurubis is the world's largest copper recycler. With its wide range of services, Aurubis is a forerunner in the industry. Its main area of expertise is the processing and optimal utilization of concentrates with complex qualities. Consequently, it has a broad product portfolio. The portfolio includes precious metals, selenium, lead, nickel and a series of other products such as sulfuric acid and iron silicate. Aurubis has production sites in Europe and the USA and an extensive service and sales system for copper products in Europe, Asia and North America. The largest production centers are in Germany, Belgium and Bulgaria. The Aurubis Group is managed centrally from the corporate and administrative headquarters in Hamburg, where key production facilities are also concentrated. 6,673 employees worked for the Aurubis Group worldwide as of September 30, 2019. Of this number, 57 % worked at the German plants and 43 % worked in other countries. Customers of Aurubis include companies in the semis industry, the electrical engineering, electronics and chemical industries, as well as suppliers of the renewable energies, construction and automotive sectors. Aurubis is oriented to growth and to increasing corporate value. The main focuses of our strategy are on expanding our leading market position as an integrated copper and metal producer, entering new markets by offering metals for industries of the future, utilizing growth opportunities and practicing a responsible attitude when dealing with people, resources and the environment. Aurubis AG was founded in Hamburg in 1866 under the name Norddeutsche Affinerie AG. Following various changes in the ownership structure, an IPO was carried out in 1998. The company was renamed Aurubis as a result of a resolution passed at the company's Annual General Meeting on February 26, 2009. Aurubis shares are part of the Prime Standard Segment of the Deutsche Börse and are listed in the MDAX and the Global Challenges Index (GCX).

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2019	December 31 2019	Please select	<Not Applicable>

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

Belgium
Bulgaria
Finland
Germany
Italy
Netherlands
United States of America

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

EUR

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C-MM0.7

(C-MM0.7) Which part of the metals and mining value chain does your organization operate in?

Row 1

Mining

Please select

Processing metals

Copper
Gold
Platinum group metals
Silver
Nickel
Zinc
Lead
Other non-ferrous metals, please specify (Selenium Tellurium Tin)

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Chief Executive Officer (CEO)	Energy and climate related targets are part of the sustainability strategy. The sustainability strategy is reviewed and has to be approved by the CEO. The CEO oversees major capital expenditures for energy investments, e.g. the 21,7 Mio. € for the district heating project in Hamburg. There are several reports on energy and climate targets that require approval by the CEO, e.g. the CDP questionnaire.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	Energy and climate related targets are part of the sustainability strategy. The sustainability strategy is reviewed and has to be approved by the CEO. The sustainability strategy is part of the groups business strategy. An example of how a governance mechanism selected contributes to the boards oversight is that the CEO oversees major capital expenditures for energy investments, e.g. the 3,5 Mio. € for the district heating project in Hamburg. There are several reports on energy and climate targets that require approval by the CEO, e.g. the CDP questionnaire. Furthermore, climate related risks are monitored and reported quarterly to the board. Weekly discussions are held (among other core activities) on exposure to climate related costs, with a discussion of mitigation actions.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
President	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Environment/ Sustainability manager	<Not Applicable>	Assessing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

Senior Vice President Corporate Energy & Climate Affairs and Energy Managers: The development and implementation of the group-wide energy strategy is the central responsibility of the head of Corporate Energy & Climate Affairs, who reports directly to the CEO. This includes the local energy supply and purchasing strategy, CO2 management and the coordination of the local energy management systems and the energy efficiency network. Such composition ensures an appropriate overview for the CEO related to important and emerging climate topics and enables short decision paths. In weekly Jour Fixes status of measures are reported, for example progress in energy efficiency projects, by the team of six Energy Managers. Planned local investments with effects on energy consumption, energy efficiency and CO2 emissions are coordinated together with the plant managers and/or energy officers.

Vice President Environmental Protection and Environment Managers: The Senior Vice President Operations and the Vice President of Corporate Environmental Protection are responsible for the strategic positioning of environmental protection in the Group. Corporate Environmental Protection reports directly to the Senior Vice President Operations. Such composition ensures that the Senior Vice President Operations has appropriate overview of relevant standards and can ensure adherence to legal environmental requirements. Standards are implemented by the head of Corporate Environmental Protection together with the plant managers at the sites. Together with the sites' environmental officers, Corporate Environmental Protection supervises adherence to the legal environmental requirements, regulatory provisions, standards and business demands. Environment Managers request environmental KPI (including carbon emissions and energy consumption)on a yearly basis from all plants for reporting and monitoring.

Important current issues and developments are reported more frequently to the Executive Board.

Sustainability managers: Sustainability is organized within the company in Investor Relations & Corporate Communications. The Vice President Investor Relations & Corporate Communications reports directly to the Executive Board. Sustainability Management serves as the interface between the headquarters and the sites and coordinates all of the processes related to this topic. It is also responsible for continuously reviewing and developing the Sustainability Strategy at the same time. The Sustainability Management cooperates with the respective divisions and departments in the Aurubis Group and assists with the operative implementation of sustainability measures. The targets and measures are monitored and reviewed in close coordination with the involved departments and the Executive Board. Climate Change targets are part of the Sustainability Strategy. The Supervisory Board is informed monthly about current sustainability developments.

Executive Director Corporate Risk Management: The Executive Director Corporate Risk Management is responsible for managing the corporate risk management, which naturally includes risk reporting as well. Standard risk reporting, takes place bottom-up each quarter using a uniform, group-wide reporting format. Climate-related risks are also recorded in this way in order to obtain a comprehensive picture of the risks and possible interdependencies and connections with other types of risk. Within this reporting format, the identified risks and especially risks beyond a defined threshold are explained and evaluated on the basis of their probability of occurrence and their business significance. Measures to manage them are then individually outlined.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity inventivized	Comment
President	Monetary reward	Efficiency project	The Senior Vice President Corporate Energy and Climate Affairs has yearly target agreements, which form the basis for the additional rewards. Energy efficiency is included in these targets due to its great importance for Aurubis. This also covers the emission reduction targets, projects and initiatives.
President	Monetary reward	Emissions reduction target	The Vice President Corporate Environmental Protection has yearly target agreements, which form the basis for additional rewards. In these targets for environmental managers, Environmental Key Performance Indicators are of great importance and are therefore included.
Energy manager	Monetary reward	Efficiency target	Managers have yearly target agreements, which form the basis for additional rewards. Energy efficiency is included in these targets due to its great importance. This covers the project management of the initiatives mentioned in CC 4.3a
Environment/Sustainability manager	Non-monetary reward	Other (please specify) (Compliance with sustainability strategy)	Managers have yearly target agreements, which form the basis for additional recognition. In these targets for sustainability managers, compliance with the Sustainability Strategy is of great importance.
All employees	Monetary reward	Emissions reduction project Energy reduction target Efficiency project Behavior change related indicator Supply chain engagement	At Aurubis AG, there is a company suggestion scheme (Betriebliches Vorschlagswesen, BVW). This allows employees to submit their suggestions and ideas. If the ideas are successfully implemented, employees receive monetary compensation. These suggestions include any ideas that contribute to improvements, for example in the area of occupational health and safety, health and environmental protection, resource efficiency or the effectiveness of social institutions.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	1	
Medium-term	1	3	
Long-term	3	10	

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

A risk that is clustered with a high probability of occurrence and will have a financial impact exceeding 50 million € is classified as a high risk (substantive financial impact).

In case such a risk appears on the risk portfolio and would be conflicting with existing strategic targets, we would counter this risk and redefine strategic targets, if necessary. If a new risk is identified that could have a significant impact on earnings or bears reputational risks, it must be immediately reported to the Board of Executive Directors.

In general, Aurubis Group defines strategic impact as an impact which limits or extends future possibilities for strategic actions and therefore may require strategy adjustments.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Risk management officers have been appointed for all sites, business sectors and central functions, and they form a network within the Group. The Group headquarters in Hamburg manages the network. The RMS is documented in a corporate policy. Standard risk reporting takes place bottom-up each quarter using a uniform, group-wide reporting format. Within this format the identified risks and risks beyond a defined threshold are explained and evaluated on the basis of their probability of occurrence and their business significance, and measures to manage them are outlined. The risks registered with Group headquarters are qualitatively aggregated into significant risk clusters by Corporate Risk Management and reported to the entire Executive Board. The report also establishes the basis for the report to the Audit Committee of the Supervisory Board ("Audit Committee") as well as external risk reporting. In the report to the Executive Board and the Audit Committee, the qualitatively aggregated risk clusters are assessed with due regard to risk management measures (net perspective) based on their probability of occurrence and the potential effect on earnings pursuant to the spreads included in the table, and are classified as low, medium or high. Risks are clustered according to their potential effect on earnings, determined by the probability of occurrence and financial impact of occurrence. A risk that is clustered with a high probability of occurrence and will have a financial impact exceeding 50 million € is classified as a high risk (substantive financial impact). One relevant risk issue is energy that amongst others identifies the risk of increasing carbon costs due to politics' goal to comply with the Paris Agreement to combat climate change. Also, customer's demand for transparent goals and strategies regarding effective production processes, energy and carbon efficiency is incorporated in the risk management and countered by reporting to CDP. On top of this exercise a strategic risk portfolio is set up and updated once a year in close cooperation with Corporate Development / Strategy. The focus of this strategic risk portfolio is on long-term risks. All risks that are somehow connected to climate change are clearly indicated in this portfolio.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes regulation risks into the risk assessment process. Aurubis actively takes part in the political dialogue to counter the challenges that regularly arise from changes to regulatory requirements. Corporate Energy and Climate Affairs and Corporate External Affairs monitor the regulatory situation and create regular updates in exchange with trade associations. Based on this is a quarterly risk assessment done to quantify the impacts and estimate the likelihood. Example: One example are financial burdens resulting from changes in potential cost drivers such as the EU Emission Trading Scheme (ETS). Aurubis is covered by the EU ETS for six installations throughout the EU, with total direct emissions amount of ~ 460.000 t CO2e in 2019. Other Burdens resulting from changes in potential cost drivers such as the German Renewable Energys Act (EEG), the emissions trade, grid charges and the eco-tax are quantified in the climate-related risk assessments in order to the possible loss of exemptions due to not qualifying or drastic changes in regulation. However we have climate-related risk assessments that analyze the maximal magnitude of risks, if total exemption cases are lost.
Emerging regulation	Relevant, always included	Inclusion in risk assessment: Aurubis assesses and values the risk quarterly and actively takes part in the political dialogue to counter the challenges that regularly arise from changes to regulatory requirements. Corporate Energy and Climate Affairs and Corporate External Affairs monitor the regulatory situation and create regular updates in exchange with trade associations. Aurubis is covered by the EU ETS for six installations throughout the EU, with total direct emissions amount of ~ 440.000 t CO2e in 2019. Example: The fundamental retention of the special Carbon Leakage status for certain sectors starting in 2021 with regard to the allocation of free Emission Trading allowances and CO2 electricity price compensation stands out politically. The completion of the decision-making for the CO2 electricity price compensation is still pending. However, we expect to see a rise in CO2 costs due to increases in CO2 prices resulting from the supply shortage of available CO2 certificates in the coming trading period as well policy actions like the market stabilization reserve.
Technology	Relevant, sometimes included	Inclusion in risk assessment: Aurubis assesses and values the risk quarterly. However, it has to be stated that Aurubis currently cannot offset its own CO2 emissions against the amount of CO2 reduction resulting from projects like “Industrial heat”. Due to rising burdens by CO2, Aurubis evaluates alternative low or zero carbon technologies as alternatives. Example: Aurubis started initiatives for decarbonization (e.g. industrial heat utilization or power to steam) that normally do not fulfil the financial requirements for project approval of Aurubis. But due to the assessment of future demands in a low carbon future, decisions are made to approve these projects, by taking into account these climate related risks (higher CO2 costs, fluctuating electricity supply by renewables).
Legal	Relevant, always included	Inclusion in risk assessment: The violation of laws can have serious consequences for Aurubis as a Group and also for its employees and business partners. Therefore, we consistently follow all legal requirements. Significant compliance risks are identified, analyzed and communicated by Compliance Management. We counter legal and tax risks with organizational procedures and clear management structures. There is always a risk that environmental or regulatory provisions could become more stringent, leading to added costs or limitations in product fabrication and marketing. Example: For the climate-related risks, assessments are conducted by using scenario analysis of changing legislations and resulting increased burdens. These Burdens resulting from changes in potential cost drivers such as the German Renewable Energys Act (EEG), the emissions trade, grid charges and the eco-tax are quantified in the climate-related risk assessments in order to the possible loss of exemptions due to not qualifying or drastic changes in regulation.
Market	Not relevant, explanation provided	Reason for non-inclusion: As copper is a commodity with worldwide equal prices, at the moment, customers do not pay more for premium products like “green copper”. However, increasing demands for transparent goals and strategies with regard to effective production processes, energy and CO2 efficiency could represent an influence on future copper product sales, particularly in terms of customer acquisition and retention. In addition, due to megatrends like e-mobility, renewable energy production, digitization a rising demand for copper is expected for the future. We monitor customer expectations through close contact and exchange with customers and general market surveys. Several customers ask us to answer CDP Climate Change questionnaire. As counter steps we do the annual climate reporting and the evaluation of this reporting by means of the CDP.
Reputation	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes reputation risks into the risk assessment process. The growing interest and increasing requirements from the surrounding environment validate our actions, as Aurubis is an energy intensive company emitting more than 1,44 Mio. t CO2 (direct and indirect) in 2019. Our responsible departments monitor the expectations of different stakeholders closely and engage in dialogues. Our external affairs, sustainability, communication and environmental departments monitor the reputation especially in the local surrounding of the plants and reports the risk assessment to the risk management. We work for a good relation to the local authorities. Therefore we work together with the local authorities in initiatives (like Hamburger Klimabündnis) and monitor emissions more than legally required. Additionally, we engage in projects like low carbon industrial heat for municipal heat supply. For example, meanwhile our customers are attaching more value to topics such as environmentally sound products, climate protection, modern production processes and a responsible and reliable supply of raw materials. In addition to investors, our customers are also paying heightened attention to whether Aurubis participates in climate reportings such as the “CDP” (formerly Carbon Disclosure Project).
Acute physical	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes acute physical risks into the risk assessment process. At certain times, today’s climate and weather conditions have an economic impact on companies such as Aurubis. During every winter season, when acute extreme weather conditions could occur at our site in Hamburg, a special seasonal team “Ice Age Team” assesses weather risks by analyzing weather reports and develop alternative solutions with potential service providers for the case that the sea routes are not usable because of certain weather conditions. Furthermore, we are monitoring for some sites the water levels and temperatures of nearby rivers (e.g. Rhine in Emmerich or Elbe in Hamburg) due to the availability of sufficient cooling water. In cases of warm water or low tides we are going to start up alternative cooling concepts. Example: Occasionally, weather and climate disrupt the smooth operation of the supply chain in raw material procurement, such as when shipping lines carrying vital supplies of anodes and cathodes have to keep their vessels tied up because of hurricanes in the Atlantic. Another scenario is when storms and rain make it impossible to unload copper concentrate at Brunsbüttel, the port of discharge at the mouth of the Elbe River used by Aurubis Hamburg. These settings can result in delays and shortfalls in supply, and Logistics has to come up with an answer so that production does not grind to a halt.
Chronic physical	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes chronic physical risks into the risk assessment process. As we purchase concentrates from all over the world, climate change related impacts on transportation routes (rise of sea level, extreme weather conditions, etc.) can be one of several risks for securing our raw materials supply. We deal with logistics risks by implementing a thorough, multi-step acceptance process for service providers, by avoiding single sourcing as far as possible, and by preventively developing back-up solutions. We have an international network of qualified service providers at our disposal and, for instance, prevent weather-related risks in the transport chain by minimizing contingency risks through contractual arrangements that provide for appropriate alternatives. Example: Water related risks are also substantial for mines and one of the reasons for negative impacts on production. Our diversified supplier base regarding different countries and region reduces this risk. Environmental impact is one of our criteria in our business partner screening to minimize sustainability risks in our supply chain.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Current regulation	Carbon pricing mechanisms

Primary potential financial impact

Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description
All companies that emit carbon dioxide must have the corresponding rights for this. Six of our European sites are in the scope of the EU-ETS, covering 86% of total Scope 1 emissions. These local additional CO costs reduce the competitiveness of European industry in an international comparison. To balance these effects, so-called carbon leakage sectors were established, including the copper industry. This status currently softens the effect of the general reduction of allocated CO_2 certificates to a great extent. In order to protect the copper industry from disadvantages in international competition, the European Union (EU) has already authorized limited compensation for electricity price increases stemming from CO_2 emissions trading. Some EU member states, including Germany, have adopted corresponding funding guidelines. Due to EU regulations for the copper industry, however, the compensation approved in Germany, where about 60% of our production facilities are located, is only 50 % effective. This leads to a significant remaining load due to indirect CO_2costs, despite our existing carbon leakage protection. The copper production and processing industry is expected to continue receiving free allocations of emission trading allowances for direct CO2 emissions between 2021 and 2030 due to its carbon leakage status. However, taking into account the political goals of the Paris Agreement, we expect a decline in the free allocation of allowances. The CO2 price increased substantially again in the past year. The supply of CO2 certificates is set to be significantly reduced in the coming trading period, which should raise prices considerably. The political decision-making process regarding the form and amount of compensation for indirect CO2 costs in electricity as of 2021 has started. The copper sector needs to remain eligible for compensation as a matter of principle. The completion of the decision-making for indirect compensation process is still pending. However, we expect to see a rise in CO_2costs due to increases in CO_2prices resulting from the supply shortage of available CO_2certificates in the coming trading period (2021–2030). This circumstance was envisaged by politicians with the goal of complying with the Paris climate accord. In addition to the European regulations, an increase in the CO_2 price is also being discussed in Germany. We expect costs to increase in the medium term overall, which could lead to significant strains.

Time horizon
Short-term

Likelihood
Likely

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
1000000

Potential financial impact figure – maximum (currency)
50000000

Explanation of financial impact figure
The potential financial impact of critical developments due to changes in ETS legislation is registered by our risk management in a risk cluster as “medium”. According to our risk cluster stated in the Annual Report 2018/19 page 96, a medium risk means the additional operational costs will exceed € 1 million and could even reach levels of over € 50 million, depending on probability and underlying context. Carbon price forecasts and a prognosis of Aurubis’ emission balance have been taken into account.

Cost of response to risk
2200000

Description of response and explanation of cost calculation
Our objective is to help shape the legal conditions for environmentally sound copper production in Europe with our knowledge and many years of experience. The areas of raw materials, energy and environmental protection and the reduction of trade restrictions are at the forefront of our dialogue with policymakers. Our partners are members of the European Parliament, the German Bundestag, representatives of the European Commission (EC), federal and state ministries and civil society groups. As in previous years, in 2019 Aurubis continued to regularly participate in public consultations, either directly or indirectly through associations. During the reporting period, this took place via the German Federal Ministry for Economic Affairs and Energy on the electricity market law, on the EC’s Circular Economy Package and on the planned reform of the EU ETS. Aurubis also actively takes part in the political dialogue to counter the challenges that regularly arise from changes to regulatory requirements. For example, in Germany we participate in the Energy Efficiency Platform led and initiated by the BMWi in 2014. Working groups meet regularly on topics like energy management. The development of joint solutions is discussed together with the relevant stakeholders from business, civil society, science, public departments and the federal states. Situation: The EU ETS leads to significant additional indirect CO costs, despite the trading allowances for direct CO2 emissions provided to the copper industry. However, considering the political goals of the Paris Agreement, we expect a decline in the free allocation of allowances. The supply of CO2 certificates is set to be significantly reduced in the coming trading period, which should raise prices considerably. Task: Although the European Commission is striving to reduce the number of sectors with carbon leakage status, the copper sector must still be eligible for compensation. Action: In 2019 Aurubis continued to participate in public consultations, e.g. via the German Federal Ministry for Economic Affairs and Energy on the planned reform of the EU ETS. Result: The political decision-making process regarding the compensation for indirect CO2 costs in electricity as of 2021 has started and we see ourselves in a good position to help ensure that the copper industry stays eligible for compensation/trading allowances. How the figure was calculated: Cost of Energy and Climate Department, that manages these issues.

Comment

Identifier
Risk 2

Where in the value chain does the risk driver occur?
Downstream

Risk type & Primary climate-related risk driver

Reputation	Increased stakeholder concern or negative stakeholder feedback

Primary potential financial impact
Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
The public is more aware now than ever as to whether a company engages in responsible business practices. When compared within the global industry, our efforts have been successful and we hold a leading position in energy efficiency. However, as we increase productivity and efficiency, we also reach our technical limits. Efficiency enhancements that have already been achieved don’t serve as a blueprint for future development because the more steps that have already been taken in energy

efficiency, the more difficult it is to optimize energy demand further. Because there are technological limits to reducing energy consumption and emissions, a continued high level of investment leads to only marginal improvements compared to past years. Environmental protection already accounts for a large proportion of energy consumption at Aurubis, as the rising use of complex recycling raw materials with comparatively low copper content requires a higher amount of energy. At out plant in Lünen 30% of our electricity consumption is caused by environmental protection measures. This target conflict is not apparent at first sight, but states a big challenge for Aurubis.

Time horizon
Long-term

Likelihood
Unlikely

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
1000000

Potential financial impact figure – maximum (currency)
5000000

Explanation of financial impact figure
Reputation loss can result from various risk drivers and thus financial implications could reach 1 Mio € or more. The impact is estimated because the risk is substantial and we observe risks with a financial impact of more than 1 Mio. €. The actual impact is not predictable because of many variable components.

Cost of response to risk
10000

Description of response and explanation of cost calculation
Aurubis regularly participates in public consultations, either directly or indirectly through associations. One example is the participation in the CDP, without this participation the reputation and transparency would drop down. Transparency underpins our aim to successfully manage Aurubis as a company that lives by its sustainability credentials and communicates this stance appropriately. This includes the diverse aspects of our supply chains, our strategy with regard to the environment, resources, the people at the heart of our daily work at Aurubis and our partners. Transparency helps us both in terms of our business and our sustainability targets. Transparent communication makes this possible – for customers, suppliers, investors, the people living near our facilities and, last but not least, for us – the people at Aurubis. (Nachhaltigkeitsbericht S.10) One example of how Aurubis engages in matters of transparency is the participation in CDP reporting since 2014. Additionally on customer's request we take part in the EcoVadis Supplier's Platform and are rated on our environmental, social and governance performance. For our performance in 2018 we got the Gold Status (like only 5% of all participants of EcoVadis). How figure in „Cost of management“ was calculated: Situation: The public is more aware now than ever as to whether a company engages in sustainable business practices, that consider among other things climate activities. Misconduct or negligence can lead to a loss of trust and thus customers. Task: Aurubis has to determine in exchange with its stakeholders which sustainability initiatives are important and then decide which initiatives to participate in and to what extent and with what objectives the participation should take place. Action: Aurubis has been participating in CDP since 2014 and at a later stage also joined EcoVadis. Result: In 2019 Aurubis managed to participate in CDP and EcoVadis, both times achieving a rating that was well above the average. This further solidified the company’s image as an outperformer in terms of sustainability and climate reduction. No additional costs for management, as they are already part of organization. However, participating in the annual CDP report costs the participation fee, which doesn’t exceed € 10,000.

Comment

Identifier
Risk 3

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Increased severity and frequency of extreme weather events such as cyclones and floods

Primary potential financial impact
Other, please specify (Delays in delivery or failure to deliver)

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
At certain times, today’s climate and weather conditions have an economic impact on companies such as Aurubis. Occasionally, weather and climate disrupt the smooth operation of the supply chain in raw material procurement, such as when shipping lines carrying vital supplies of anodes and cathodes have to keep their vessels tied up because of hurricanes in the Atlantic. Another scenario is when storms and rain make it impossible to unload copper concentrate at Brunsbüttel, the port of discharge at the mouth of the Elbe River used by Aurubis Hamburg. The yearly shipped amount of copper concentrate is 1 .1 Mio. tons. Therefore, each day of supply disruption 3,000 tons of copper concentrate could not be processed. Furthermore, each day supply disruption leads therefore to a loss of ca. 1,100 tons of copper production. These settings can result in delays and shortfalls in supply, and Logistics has to come up with an answer so that production does not grind to a halt.

Time horizon
Long-term

Likelihood
About as likely as not

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
1000000

Potential financial impact figure – maximum (currency)
50000000

Explanation of financial impact figure
The financial implications of a delay in supply are hard to quantify, according to our risk cluster a potential more extensive disruption in supply causing a standstill is classified as medium. According to our risk cluster stated in the Annual Report 2018/19 page 96, a medium risk means the additional operational costs will exceed € 1 million and could even reach levels of over € 50 million, depending on probability and underlying.

Cost of response to risk
0

Description of response and explanation of cost calculation
One management method to mitigate climate risks is the establishment of the “Ice Age Team” at Aurubis Hamburg in 2009. Situation: Aurubis is dependent on the supply of raw materials by its suppliers. Occasionally, weather and climate disrupt the smooth operation of the supply chain in raw material procurement, such as when shipping lines carrying vital supplies of anodes and cathodes have to keep their vessels tied up because of hurricanes in the Atlantic. Task: Aurubis must structure its purchasing in such a way that it can react flexibly to individual delivery failures and that the management of capacities is neither too conservative nor too excessive. Action: During the winter season, this team monitors weather scenarios and the logistical implications for the site. Every October, they start their work by analyzing the previous winter's data and develop alternative solutions with potential service providers for the case that the sea routes are not usable because of certain weather conditions. The team also discusses the correct stock of copper concentrate during the winter months, which ensures that production won’t be interrupted but also doesn’t exceed the capacities of storage. Also, Aurubis Hamburg has been cooperating more closely with the German weather service and the Hamburg Climate Institute in recent years to understand better how certain weather conditions develop. The Ice Age Team also makes sure that from November to March of each and every winter, an ice-going tugboat is made available exclusively to Aurubis within 24 hours upon request, and this vessel can break the ice in the channels and push or tow a loaded lighter (an unpowered barge). Result: The existence of the Ice Age Team has prevented Aurubis from being confronted with delivery difficulties in calendar year 2019 due to weather or climate conditions. How figure in „Cost of management“ was calculated: The management of this risk causes no additional costs, because the Ice Age Team consists of staff from different Aurubis departments and is thereby already covered by the organization.

Comment

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?
Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Opp1

Where in the value chain does the opportunity occur?
Please select

Opportunity type
Energy source

Primary climate-related opportunity driver
Use of lower-emission sources of energy

Primary potential financial impact
Reduced indirect (operating) costs

Company-specific description
The EU and its member states are setting targets for enhancing energy efficiency and reducing carbon emissions across all sectors. There is an increasing pressure to think of new projects that are able to link sectors and their potential to contribute to the climate targets. Aurubis is able to extract residual heat from its production processes. The use of residual heat replaces fossil fuels in the heat and steam production and therefore not only increases the level of energy efficiency, but also reduces carbon emissions. In October 2018, Aurubis commissioned a 3.7-km-long pipeline that transfers excess heat from our Hamburg plant to our partner enercity AG, who then supplies the neighbourhood HafenCity East with heat. We avoid 20,000 t of CO2 per year as a result. For this purpose, Aurubis extracts heat that is formed when sulfur dioxide – a by-product of copper smelting – is converted to sulfuric acid. This industrial waste heat is nearly free of CO2 and its utilization reduces CO2 emissions by more than 20,000 t per year. About half of this reduction results from the replacement of natural gas used to produce steam on the Aurubis plant premises, while the other half is saved by delivering the waste heat to enercity AG. In Hafencity East alone, about 4,500 t of CO2 will be saved each year in the final expansion (target 2029). The supply of residual heat to the HafenCity East ramped up end of 2018 and is expected to increase due to the construction of new buildings. The internal use was ramped up in mid of 2019. The first stage of the industrial heat project was honoured with several awards, e.g. dena Energy Efficiency Award, German Renewables Award 2018 etc. With reduction of 20,000 t CO2 annually, this project has a potential to reduce up to 140,000 t. That alone accounts for over 90 % of the voluntary CO2 reduction commitment that Hamburg companies have agreed on. Another example of project which contributed to reduction of carbon emissions is Aurubis power-to-steam plant (electrode boiler), which went online in 2019. It can reduce CO2 emissions by up to 4,000 t per year by using renewable energies. Aurubis achieves large part of this reduction outside of the plant boundaries. This means that it is only offset against Aurubis' CO2 emissions to a limited extent. The plant transforms the power supply system’s excess electricity, which is produced from renewable energies, into steam.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
250000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Replacing fossil fuels via residual heat utilization constitutes an economic counter value. One part of the recovered waste heat is used in the "Hafencity East" in Hamburg. The other part is used to substitute the use of natural gas for heat production at our site. By saving natural gas we save up to 10.000 tCO_2 at our plant. The current CO_2 price is 25€/t. Total savings amount up to 250.000 €/a. In addition, it is a reduction of operational costs.

Cost to realize opportunity
20000000

Strategy to realize opportunity and explanation of cost calculation
Replacing fossil fuels via residual heat utilization constitutes an economic counter value. One part of the recovered waste heat is used in the "Hafencity East" in Hamburg. The other part is used to substitute the use of natural gas for heat production at our site. Situation: The EU and its member states are setting targets for enhancing energy efficiency and reducing carbon emissions across all sectors. Task: There is an increasing pressure to think of new projects that are able to link sectors and their potential to contribute to the climate targets. Action: Aurubis is able to extract residual heat from its production processes. The use of residual heat replaces fossil fuels in the heat and steam production and therefore not only increases the level of energy efficiency, but also reduces carbon emissions. Aurubis takes a close look at all types of waste heat produced from its processes. In Aurubis Hamburg plant 87% of process steam needs are covered by waste heat. Aurubis joined forces with energy service provider enercity AG to launch Germany's largest industrial heat project and we are now supplying the Hamburg neighbourhood HafenCity East with industrial heat from Aurubis. Result: This award-winning project saves around 20,000 t of carbon dioxide (CO2) emissions per year through the reuse of heat. About half of the reduction results from avoiding the use of natural gas to produce steam on our plant premises; we save the other half by delivering the waste heat to enercity AG. Furthermore, our contact acid plant no longer has to be cooled with river water, so we use about 12 million m3 less cooling water. The total potential heat volume that could be extracted at Aurubis amounts to up to 500 million kWh, which could cover more than a tenth of Hamburg's district heating needs and prevent about 140,000 t of CO2. Furthermore, a power-to-steam facility (electrode boiler) was installed at the Aurubis Hamburg plant. During periods of surplus renewable energy in the grid, the facility converts the energy into steam for internal processes, e.g. for drying of Cu concentrates. Cost calculation: Aurubis invested roughly € 20 million to convert the facilities and move the heat pipeline to the plant boundary. Aurubis received funding for about 30 % of its investments from the German Federal Ministry for Economic Affairs and Energy (BMWi) via the Development Loan Corporation (KfW).

Comment

Identifier
Opp2

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Use of recycling

Primary potential financial impact
Reduced direct costs

Company-specific description
Metals are an important prerequisite for technical progress as well as a high standard of living. Given a constantly increasing demand paired with a limited availability of resources on the other site, metal recycling plays an important role as raw material source. Aurubis is the worldwide leading recycler of copper and complex secondary raw materials. In light of the rising importance of resource efficiency regarding sustainability, we expect demand for recycling solutions to continue growing. This is also supported and promoted by increasingly strict national and international legislation. Thanks to our multi-metal recycling activities and proximity to our copper product customers, we consider ourselves to be in a good position to offer expanded closing-the-loop solutions. Due to higher consumption levels and shorter product lifecycles, the supply of recycling raw materials is also growing more quickly. In order to utilize the rising volume of secondary raw materials from the IT and telecommunications sectors, for instance, we are expanding the processing capacities for these types of e-scrap, working on new technologies and investing in state-of-the-art facilities. Aurubis AG has acquired the recycling company Metallo - closing of the transaction took place on May 29, 2020. As a result, Aurubis has now more than 1 million tons of recycling capacity for secondary material. The input material portfolio is diverse. It extends from production waste such as clean wire scrap, stamping waste and copper cable to end-of-life recycling raw materials. These include old gutters, pipes, electronic scrap and used electrical appliances. However, we do not rely on the circular economy for copper alone. Nearly all the other metals from the recycling materials are converted into marketable products at Aurubis. Roughly 50 % of our precious metal output comes from recycling. Complex recycling material input in the Kayser Recycling System (KRS) at the Lunen site reached 259,000 t in fiscal year 2018/19 (previous year: 267,000 t)

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
1000000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
The Aurubis' revenues from precious metals amounted to 2,865 Mio € in fiscal year 2018/19. Revenue development significantly depends on metal price development. This revenue results mainly from processing of concentrates and the outcome of the recycling of complex materials. Roughly 50 % of our precious metal output derives from recycling materials. . Therefore potential financial impact is more than 1,000 Mio € on revenue.

Cost to realize opportunity
380000000

Strategy to realize opportunity and explanation of cost calculation
Our strategic reorientation to becoming a multi-metal company implies that we are investing more in recycling processes for precious metals and non-ferrous metals. Situation: Metals are an important prerequisite for technical progress as well as a high standard of living. Given a constantly increasing demand paired with a limited availability of resources on the other site, metal recycling plays an important role as raw material source. Aurubis is the worldwide leading recycler of copper and complex secondary raw materials. In light of the rising importance of resource efficiency regarding sustainability, we expect demand for recycling solutions to continue growing. This is also supported and promoted by increasingly strict national and international legislation. Task: In the metal industry, recycling is an established prerequisite for efficient and sustainable business activity. Given that copper can be recycled over and over again without loss of quality, recycling is particularly important for Aurubis. Action: Our strategic reorientation to becoming a multi-metal company implies that we are investing more in recycling processes for precious metals and non-ferrous metals. Consequently, we have set the target in both the Corporate Strategy and the Sustainability Strategy to extract many metals besides copper through recycling. In this way, we contribute to a circular economy and thus to the conservation of natural resources beyond our key expertise in copper recycling. Result: The Aurubis recycling centre in Lünen is home to the Kayser Recycling System (KRS), which produces converter copper as well as a complex, zinc-bearing residue. Our long-term partner for this so-called KRS oxide is Grillo-Werke AG, which guarantees environmentally sound recycling and produces zinc sulfate from the KRS oxide. The zinc sulfate is used in the fibre, feed and fertilizer industries. Other elements are separated at Grillo and disposed of appropriately. Aurubis takes back the resulting residue, which contains copper, tin and lead, thus closing the recovered material cycle. This cooperation between Aurubis and the Grillo-Werke AG was awarded the second prize in the Responsible Care Competition 2017. The prize is issued by the German chemical industry association “Verband der Chemischen Industrie (VCI)”.

Comment
Cost to realize opportunity: On Mai 29, 2020, Aurubis acquired the Belgian-Spanish recycling company Metallo Group for a purchase price of € 380 million. Integration of Metallo facilitates implementation of the growth strategy while making an important contribution to the circular economy. Metallo specializes in processing recycling materials with low metal contents, with a focus on tin, lead, nickel, zinc, and copper. Metallo has a zero waste business model, meaning it is able to convert all scrap materials into valuable output, making the company one of the frontrunners in metal recycling.

Identifier
Opp3

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Use of recycling

Primary potential financial impact
Reduced direct costs

Company-specific description
In the discussion about climate change the aspect of resource efficiency is more important than ever. The responsible handling of natural resources is not only vital in economic but also in environmental matters. It is important that products are recycled over and over again at the end of their lifecycles. This ensures that valuable raw materials are used, resources are conserved and environmental impacts are prevented. Therefore, the direct return of valuable production scrap back into production is an important component to implement a resource efficient economy. Aurubis fabricates about 1.08 million t of copper cathodes with a purity level of 99.99% per year. Thanks to Aurubis' distinct expertise in recycling, more than one third of these cathodes come from reprocessed copper containing recycling materials. In addition to copper cathodes, Aurubis offers its customers processed copper in form of preliminary products such as wire rod, shapes, pre-rolled strip, specialty wire and alloys.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
29500000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
More than 358 thousand tonnes or more than 33.33% of Aurubis Group cathode output come from reprocessed copper containing scrap. Taking into account Aurubis copper premium of 96 USD/t in calendar year 2019, we are speaking here about more than 29.5 Mio. € on additional revenue. In addition to copper cathodes, Aurubis offers its customers processed copper in form of preliminary products such as wire rod, shapes, pre-rolled strip, specialty wire and alloys. Moreover additional financial impact results from scrap refining charges.

Cost to realize opportunity
0

Strategy to realize opportunity and explanation of cost calculation
In the discussion about climate change the aspect of resource efficiency is more important than ever. The responsible handling of natural resources is not only vital in

economic but also in environmental matters. Situation: It is important that products are recycled over and over again at the end of their lifecycles. This ensures that valuable raw materials are used, resources are conserved and environmental impacts are prevented. Task: Therefore, the direct return of valuable production scrap back into production is an important component to implement a resource efficient economy. Action: Establishing and developing "closing-the-loop" systems as a result of new or intensified cooperation with original equipment manufacturers, retailers or copper product customers is one of the measures defined in the Aurubis Sustainability Strategy 2018-2023. Result: Aurubis' business model allows bringing copper scrap back into the production cycle without any detours or as we call it closing-the-loop. More precisely, Aurubis is able to close three loops. Firstly, Aurubis closes the internal loop between different production areas. Production scrap and intermediate products that occur during the fabrication of copper products are directly sent to our smelters to be used in the production of new cathodes. Secondly, Aurubis is working closely together with direct costumers and offers to collect their production scrap and returns it to the production process of copper and copper products. In this way, customers become suppliers at the same time. Our partners include renowned companies like ABB based in Switzerland. The third loop is our multi-metal recycling, that makes end-of-life products usable for the production of new products again. In addition to the raw materials recovered in production, the close cooperation with our customers enables the logical recycling of products that have served their purpose. The long partnership between Deutsche Telekom AG and Aurubis' subsidiary CABLO Metall-Recycling und Handel GmbH is testament to this. Aurubis receives old cables with a copper content of around 50 % as waste from one of Deutsche Telekom's partners, TEQPORT Services GmbH, and processes them using green, expert methods to produce high purity copper. The target is to increase the number of "closing-the-loop" systems with direct and indirect product customers from the metal value chain at least by 10 by 2022/23 (base FY: 2017/18).

Comment

Cost calculation: The management of this risk causes no additional costs, because the costs are already covered by budgets of the organizations' business units.

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform its strategy?

Yes, quantitative

C3.1b

(C3.1b) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details
IEA 450	Selection of the scenario: Aurubis participated actively in the development of the BDI's study "Climate paths for Germany". The cross-sectoral debates pointed out, that only a global approach to combat climate change is suitable to meet the 2° target. Which is why the IEA 450 scenario and its price projections were used for further analysis. Aim of the analysis was to investigate industrial processes and the industrial energy consumption regarding the challenges of a 2° scenario. Therefore, we gave input about our operations and productions and possible ways to decarbonize these. Time horizons considered/areas of organization considered: The IEA 450 scenario models a 2°C future until 2050. The inherent energy transformation from fossil to renewable, the vitally needed significant energy efficiency enhancements and revolution in industrial processes will have an impact on our production and our business model in the next 30 years. Results summary: The Study results were reviewed in Corporate Energy & Climate Affairs and were also used as in input during the development of the Business Strategy „Growth, Efficiency, and Responsibility" at Aurubis. For an energy intensive company like Aurubis the main result of the 2° scenario is a significant increase of the carbon price. While the study showed that the 2° target is only achievable when climate action takes place globally, the more realistic scenario is a higher ambition level in Europe compared to the rest of the world. Influence of scenario analysis on business objectives and strategy: To project possible carbon prices Aurubis discussed intensively with other industry partners in the course of the development of Study "Climate Paths for Germany". BCG projected, depending on the different parameters a price of up to 124€/ tCO2 in 2050. Energy & Climate Affairs adopted this price into its scenario analysis. For 2030 we adopted the target carbon price of the EU Commission of 30€/ tCO2. With these assumptions we projected the inherent cost burden for Aurubis. Case study Situation: The inherent energy transformation from fossil to renewable, the vitally needed significant energy efficiency enhancements and revolution in industrial processes will have an impact on our production and our business model. Task: Two main action approaches were derived from this: Primarily, Aurubis' carbon emissions must be reduced. Additionally, Aurubis' engagement with policy makers has to point out the necessity to provide Carbon Leakage protection for sectors that compete internationally. Action: 1. An example how the business strategy has been directly influenced by the scenario analysis is the carbon reduction target set in our sustainability strategy that is part of our business strategy. 2. We are also using scenario analysis to assess future development of the EV sector, because it has direct impact on such commodity segments as metals and mining. Another field, where we are using scenario analysis is around the growth of the recycling sector. Result: 1. We aim to reduce our CO2 by > 100,000 t by FY 2022/23 (base FY: 2012/13). The carbon reduction target was approved by the CEO. The target and inherent measures are monitored and reviewed in close coordination among the relevant departments and the Executive Board. The anticipation of increasing carbon prices as a result of political goals to comply with the Paris Agreement is published in our Annual Report 2018/2019. 2. An example where the business strategy has been directly influenced by the scenario analysis is the target for strategic growth in our secondary business – 100 % volume growth in direct sourcing of complex recycling materials from collection points until fiscal year 2022/23 (Baseline: fiscal year 2016/17).

C3.1d

(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	How strategy has been influenced: As an integrated copper producer, Aurubis has set the objective of producing even more copper from secondary materials, especially complex recycling raw materials. Aurubis already produces more than one out of three cathodes from recycling materials, and the trend is rising. Time horizon: Aurubis aims to increase direct sourcing of complex recycling materials from collection points: 100 % volume growth by FY 2022/23 (base year: 2016/17). Situation: In the discussion about climate change the aspect of resource efficiency is more important than ever. The responsible handling of natural resources is not only vital in economic but also in environmental matters. It is important that products are recycled over and over again at the end of their lifecycles. This ensures that valuable raw materials are used, resources are conserved and environmental impacts are prevented. Task: Therefore, the direct return of valuable production scrap back into production is an important component to implement a resource efficient economy. Action: Establishing and developing "closing-the-loop" systems as a result of new or intensified cooperation with original equipment manufacturers, retailers or copper product customers is one of the measures defined in the Aurubis Sustainability Strategy 2018-2023. Result: The target is to increase the number of "closing-the-loop" systems with direct and indirect product customers from the metal value chain at least by 10 by 2022/23 (base FY: 2017/18). Aurubis' business model allows bringing copper scrap back into the production cycle without any detours or as we call it closing-the-loop. Firstly, Aurubis closes the internal loop between different production areas. Production scrap and intermediate products that occur during the fabrication of copper products are directly sent to our smelters to be used in the production of new cathodes. Secondly, Aurubis is working closely together with direct costumers and offers to collect their production scrap and returns it to the production process of copper and copper products. In this way, customers become suppliers at the same time. Our partners include renowned companies like ABB based in Switzerland. The third loop is our multi-metal recycling, that makes end-of-life products usable for the production of new products again.
Supply chain and/or value chain	Yes	How strategy has been influenced: Thanks to our multi-metal recycling activities and proximity to our copper product customers, we consider ourselves to be in a position to offer expanded closing-the-loop solutions. Establishing and developing "closing-the-loop" systems as a result of new or intensified cooperation with original equipment manufacturers, retailers or copper product customers is one of the measures defined in the Aurubis Sustainability Strategy 2018-2023. The target is to increase the number of "closing-the-loop" systems with direct and indirect product customers from the metal value chain at least by 10 by 2022/23 (base FY: 2017/18). Time horizon: The target is to increase the number of "closing-the-loop" systems with direct and indirect product customers from the metal value chain at least by 10 by 2022/23 (base FY: 2017/18). Situation: In the discussion about climate change the aspect of resource efficiency is more important than ever. The responsible handling of natural resources is not only vital in economic but also in environmental matters. It is important that products are recycled over and over again at the end of their lifecycles. This ensures that valuable raw materials are used, resources are conserved and environmental impacts are prevented. Task: Therefore, the direct return of valuable production scrap back into production is an important component to implement a resource efficient economy. Action: Establishing and developing "closing-the-loop" systems as a result of new or intensified cooperation with original equipment manufacturers, retailers or copper product customers is one of the measures defined in the Aurubis Sustainability Strategy 2018-2023.
Investment in R&D	Yes	How strategy has been influenced: The Aurubis Group's R&D expenditures in fiscal year 2018/19 amounted to € 16 million. A significant part of these expenditures was spent to prevent negative environmental impacts further develop our metallurgical processes and the development of the new material with the longer lifespan for the area of power electronics. Time horizon: Until the middle of calendar year 2019, work of the Research and Development Department was focused on further developing metallurgical processes, especially with respect to the flexibility and productivity of the complex raw materials and recycling materials we use.
Operations	Yes	How strategy has been influenced: Climate change makes it even more important to balance economic interests, ecology and social aspects. Aurubis' Sustainability Strategy reflects all of these aspects: ensuring economic stability, promoting innovation, advancing social responsibility, increasing resource efficiency and reducing CO2 emissions Our operations have been influenced by climate change with the reduction of carbon emissions.Time horizon: We have set the target of further increasing our energy efficiency and reducing CO2 emissions wherever possible. Aurubis hopes to reduce its CO2 emissions by 100,000 t, compared to fiscal year 2012/13, by implementing projects until 2023. Situation: The inherent energy transformation from fossil to renewable, the vitally needed significant energy efficiency enhancements and revolution in industrial processes will have an impact on our production and our business model. Task: Two main action approaches were derived from this: Primarily, Aurubis' carbon emissions must be reduced. Additionally, Aurubis' engagement with policy makers has to point out the necessity to provide Carbon Leakage protection for sectors that compete internationally. Action: An example how the business strategy has been directly influenced by the scenario analysis is the carbon reduction target set in our sustainability strategy that is part of our business strategy. Result: We aim to reduce our CO2 by > 100,000 t by FY 2022/23 (base FY: 2012/13). The carbon reduction target was approved by the CEO. The target and inherent measures are monitored and reviewed in close coordination among the relevant departments and the Executive Board. The anticipation of increasing carbon prices as a result of political goals to comply with the Paris Agreement is published in our Annual Report 2018/2019

C3.1e

(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Access to capital	Both primary and secondary raw materials are becoming more complex, in that their copper contents are decreasing and the concentrations of tramp elements and impurities are increasing. A particular strength of Aurubis already consists of processing complex primary and secondary raw materials. Indeed, the company's strategy is dedicated to expanding this concept and contributes to achieving efficient and resource-friendly production processes for the raw materials of the future. If we build up additional competencies in this area, this could positively influence the Aurubis Group's revenues especially in the precious metals sector (€ 2,865 Mio. in FY 18/19). Case study Situation: The EU and its member states are setting targets for enhancing energy efficiency and reducing carbon emissions across all sectors. Task: There is an increasing pressure to think of new projects that are able to link sectors and their potential to contribute to the climate targets. Action: Aurubis is able to extract residual heat from its production processes. The use of residual heat replaces fossil fuels in the heat and steam production and therefore not only increases the level of energy efficiency, but also reduces carbon emissions. Aurubis takes a close look at all types of waste heat produced from its processes. In Aurubis Hamburg plant 87% of process steam needs are covered by waste heat. Aurubis joined forces with energy service provider enercity AG to launch Germany's largest industrial heat project and we are now supplying the Hamburg neighbourhood HafenCity East with industrial heat from Aurubis. Result: Replacing fossil fuels via residual heat utilization constitutes an economic counter value. One part of the recovered waste heat in the district heating project initiated by Aurubis, enercity AG and the city of Hamburg is used to substitute the use of natural gas for heat production at our site. By saving natural gas, we save up to 10,000 t CO2 at our plant. The current CO2 price is 25 €/t. Total savings amount to up to 250,000 €/a. Aurubis' and enercity AG project delivers CO2-free waste heat for Hafencity East in Hamburg. The two participating companies invested over € 20 million each, 30 to 40 percent of which was publicly funded. Aurubis received funding from the German Reconstruction Loan Corporation (KfW), while enercity AG received support from the European Regional Development Fund (ERDF) and the KfW. The funding was initiated by the German Federal Ministry for Economic Affairs and Energy (BMWi) and the Hamburg Authority for Environment and Energy (BUE). In 2019 Aurubis inaugurated a state-of-the-art power-to-steam plant in its headquarters in Hamburg. This plant transforms power supply system's excess electricity from renewable energies into steam, which is utilized in production. This steam can be utilized in the multi-metal production processes – to dry copper concentrates, for instance – and thus replaces some of the steam that has to be produced with fossil fuels. Aurubis invested ca. 3.5 million Euro for its power-to-steam plant. The Federal Ministry for Economic Affairs and Energy provided 10 % of the funds used to construct the power-to-steam plant as part of NEW 4.0. Aurubis participates in the project NEW 4.0. among others, which is funded by the German Federal Ministry for Economic Affairs and Energy. The goal of the project is to supply the entire region of Hamburg and Schleswig-Holstein with regenerative electricity in a safe, cost-effective, and environmentally sound manner.

C3.1f

(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?
Absolute target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number
Abs 1

Year target was set
2013

Target coverage
Company-wide

Scope(s) (or Scope 3 category)
Scope 1+2 (market-based)

Base year
2013

Covered emissions in base year (metric tons CO2e)
1162321

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)
100

Target year
2022

Targeted reduction from base year (%)
8.6

Covered emissions in target year (metric tons CO2e) [auto-calculated]
1062361.394

Covered emissions in reporting year (metric tons CO2e)
1444347

% of target achieved [auto-calculated]
-282.13996761852

Target status in reporting year
Underway

Is this a science-based target?
No, but we anticipate setting one in the next 2 years

Please explain (including target coverage)
The absolute reduction target in the medium term is primarily an energy efficiency target which has been translated into tons of CO2. In fiscal year 2013 we launched our Group wide Sustainabilty Strategy, which aims to reduce CO2 emissions by 100.000 tCO2 by 2022/2023 (updated in 2018 in line with the Vision 2025). The program is being implemented through concrete Projects at individual sites.

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?
No other climate-related targets

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.
Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	1	120000
To be implemented*	3	1651
Implementation commenced*	1	20000
Implemented*	4	3758
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Low-carbon energy consumption	Other, please specify (Waste heat recovery and utilization to replace steam (generated by natural gas).)

Estimated annual CO2e savings (metric tonnes CO2e)
20000

Scope(s)
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
500000

Investment required (unit currency – as specified in C0.4)
4000000

Payback period
4-10 years

Estimated lifetime of the initiative
16-20 years

Comment
This is the internal use of the in 2018 implemented heat recovery project, that will generate savings from 2019 on. There are additional income by sale of the industrial heat. The savings only reflect the savings by CO2 emission reduction (20,000 t CO2 x 25 €/t CO2). Contract is running 20 years, therefore the lifetime is set to 20 years.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Internal price on carbon	When investments in process optimization or new facilities reduce emissions, they are valued with Aa CO2 price forecast. The resulting savings is are taken into account for investment calculations and are therefore a driver for investment decisions. For example 1.000 MWh savings of natural gas lead to 25.000 € savings (at a natural gas price of 25 €/MWh) and additionally to reductions of 200 tons CO2 emissions, what leads to another 5.000 € savings. Therefore, CO2 is with 17% a substantial driver of fuel savings.
Compliance with regulatory requirements/standards	Investments in emissions reductions are done in alignment with EU-ETS reduction targets (at the moment only binding target) to avoid the obligation for additional certificate purchase.
Internal incentives/recognition programs	New ideas could be submitted via a company suggestion system and in case of implementation they are honoured with a bonus depending on the savings. Furthermore, certain managers have individual bonus payouts depending on climate related targets that also consist emission reductions.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?
Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation
Group of products

Description of product/Group of products
We produce our main product, copper, from copper concentrates and recycling materials. It is an ideal metal for reprocessing, as it isn't fully used up but can be returned to the cycle as often as desired without a loss of quality. Copper therefore fulfills sustainability and resource efficiency requirements to a large extent. Looking forward, Europe's sustainable energy future depends on a partnership between energy efficiency and renewable energy. The more efficiently energy services are delivered, the faster renewable energy can become an effective and significant contributor in primary energy production. Copper is an essential material in building the energy systems of the future. It plays an important role in renewable energy systems, such as solar, wind, tidal, hydro, biomass, and geothermal. Copper is the most highly rated thermal and electrical conductor among the metals used in infrastructure and product design. Power systems utilising copper generate, transmit and use energy with higher efficiency, thus reducing greenhouse gas emissions and optimising life cycle costs.

Are these low-carbon product(s) or do they enable avoided emissions?
Low-carbon product and avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions
Other, please specify (Life Cycle Assessment (LCA))

% revenue from low carbon product(s) in the reporting year
57

% of total portfolio value
<Not Applicable>

Asset classes/ product types
<Not Applicable>

Comment
57% of our revenues in fiscal year 18/19 were generated by copper product Groups.

Level of aggregation
Group of products

Description of product/Group of products
The copper content in copper cathodes derived from recycled materials

Are these low-carbon product(s) or do they enable avoided emissions?
Low-carbon product and avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions
Other, please specify (Life Cycle Assessment (LCA))

% revenue from low carbon product(s) in the reporting year
35

% of total portfolio value
<Not Applicable>

Asset classes/ product types
<Not Applicable>

Comment
35% of the copper content in copper cathodes derived from recycled materials in FY 18/19. 19% of our total revenues are derived from copper cathodes.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start
January 1 2012

Base year end
December 31 2012

Base year emissions (metric tons CO2e)
518789

Comment

Scope 2 (location-based)

Base year start
January 1 2012

Base year end
December 31 2012

Base year emissions (metric tons CO2e)
905666

Comment
Added as new information in this CDP reporting.

Scope 2 (market-based)

Base year start
January 1 2012

Base year end
December 31 2012

Base year emissions (metric tons CO2e)
1176993

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.
European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
502926

Start date
<Not Applicable>

End date
<Not Applicable>

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based
We are reporting a Scope 2, location-based figure

Scope 2, market-based
We are reporting a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based
757564

Scope 2, market-based (if applicable)
941421

Start date
<Not Applicable>

End date
<Not Applicable>

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?
Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source
Emissions from driving vehicles

Relevance of Scope 1 emissions from this source
Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source
No emissions from this source

Relevance of market-based Scope 2 emissions from this source (if applicable)
No emissions from this source

Explain why this source is excluded
Not relevant, because below 1% of global emissions

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status
Relevant, calculated

Metric tonnes CO2e
1203886

Emissions calculation methodology
Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using specific regional emission factors for primary raw materials from LCA databases, and hybrid physical/financial model for other materials.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Please explain

Capital goods

Evaluation status
Relevant, calculated

Metric tonnes CO2e
111027

Emissions calculation methodology
Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using monetary-based emission factors.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Please explain

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status
Relevant, calculated

Metric tonnes CO2e
155512

Emissions calculation methodology
Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors. Including upstream (WTT) emissions of all fuels balanced under Scope 1, as well as upstream (WTT) emissions of purchased electricity.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Please explain

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Metric tonnes CO2e
239505

Emissions calculation methodology
Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors. Including transport of primary and secondary input materials and intralogistics.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Please explain

Waste generated in operations

Evaluation status
Not relevant, calculated

Metric tonnes CO2e
5048

Emissions calculation methodology
Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors. Differentiates between deposited/burned waste and recycled materials.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Please explain

Business travel

Evaluation status
Not relevant, calculated

Metric tonnes CO2e
1898

Emissions calculation methodology
Calculation based on Greenhouse Gas Protocol Scope 3 Standard. Using physical emission factors and reported data from service providers.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Please explain

Employee commuting

Evaluation status
Relevant, calculated

Metric tonnes CO2e
11317

Emissions calculation methodology
Calculation based on Greenhouse Gas Protocol Scope 3 Standard. Using physical emission factors and average distances and modal splits.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Please explain

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no significant upstream leased assets to be accounted for.

Downstream transportation and distribution

Evaluation status
Relevant, calculated

Metric tonnes CO2e
139446

Emissions calculation methodology
Calculation based on Greenhouse Gas Protocol Scope 3 Standard, using physical emission factors per transport mode. Including transport of main- and by-products.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Please explain

Processing of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Aurubis is a producer of base materials. Due to the nature of our products and the innumerable variants of processing and end-of-life treatment, it is impossible to make valid assumptions about the related emissions. It is therefore regarded as not relevant based on the criteria established by the Greenhouse Gas Protocol Standard.

Use of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Aurubis is a producer of base materials that do not cause any direct use phase emissions.

End of life treatment of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Aurubis is a producer of base materials. Due to the nature of our products and the innumerable variants of processing and end-of-life treatment, it is impossible to make valid assumptions about the related emissions. It is therefore regarded as not relevant based on the criteria established by the Greenhouse Gas Protocol Standard

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no significant downstream leased assets to be accounted for.

Franchises

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no franchises to be accounted for.

Investments

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no significant investments that are not already covered in the other scopes and categories.

Other (upstream)

Evaluation status

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?
No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure
0.00121

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
1444347

Metric denominator
unit total revenue

Metric denominator: Unit total
11897000000

Scope 2 figure used
Market-based

% change from previous year
18

Direction of change
Decreased

Reason for change
Due to overall emission reduction and increasing revenues the intensity figure decreased. For changes of overall emissions please see C7.9a

Intensity figure
210.76

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
1444347

Metric denominator
full time equivalent (FTE) employee

Metric denominator: Unit total
6853

Scope 2 figure used
Market-based

% change from previous year
16.3

Direction of change
Decreased

Reason for change
Due to overall emission reduction the intensity figure decreased. For changes of overall emissions please see C7.9a

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?
No

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
United States of America	40425
EU28	462501

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.
By facility

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Hamburg, Germany	156601	53.521576	10.03331
Pirdop, Bulgaria	56706	42.703374	24.177048
Lünen, Germany	161113	51.60646	7.50755
Olen, Belgium	42107	51.177305	4.879092
Stolberg, Germany	3504	50.759048	6.234986
Buffalo, USA	40425	42.948404	-78.892807
Zutphen, Netherlands	4353	52.157565	6.206821
Pori, Finland	7308	61.462226	21.861253
Avellino, Italy	16108	40.914388	14.790612
CABLO Metall-Recycling und Handel GmbH, Fehrbellin, Deutschland	40	52.79407	12.76509
E.R.N., Hamburg, Germany	26	53.526343	10.029339
Retorte, Hamburg, Germany	337	49.49038	11.24973
Peute Baustoffe, Hamburg, Germany	9	53.51133	10.05728
Deutsche Giessdraht, Emmerich, Germany	14290	51.82784	6.26501

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	502926	<Not Applicable>	
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
United States of America	11800	19953	22349	126642
EU28	745764	921468	1437891	0

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By facility

C7.6b

(C7.6b) Break down your total gross global Scope 2 emissions by business facility.

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Hamburg, Germany	277057	480312
Pirdop, Bulgaria	288593	177981
Lünen, Germany	81385	113274
Olen, Belgium	35331	82080
Stolberg, Germany	16183	20896
Buffalo, USA	11800	19953
Zutphen, Netherlands	23963	18982
Pori, Finland	4391	8169
Avellino, Italy	5692	4627
Cablo, Germany	5749	8015
E.R.N, Germany	96	133
Retorte, Germany	843	1175
Peute Baustoffe, Germany	190	265
Emmerich, Germany	6292	5557

C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7

(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	757564	941421	
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	No change
Other emissions reduction activities	17358	Decreased	1.2	Optimization measures, please see implemented CO2 reduction measures
Divestment	0	No change	0	No change
Acquisitions	0	No change	0	No change
Mergers	0	No change	0	No change
Change in output	64054	Decreased	4.4	
Change in methodology	0	No change	0	No change
Change in boundary	0	No change	0	No change
Change in physical operating conditions	0	No change	0	No change
Unidentified	0	No change	0	No change
Other	69990	Increased	4.8	

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	2888	1642741	1645629
Consumption of purchased or acquired electricity	<Not Applicable>	126642	1460239	1586882
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	4962	4962
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	22006	<Not Applicable>	22006
Total energy consumption	<Not Applicable>	151536	3107943	3259478

C-MM8.2a

(C-MM8.2a) Report your organization's energy consumption totals (excluding feedstocks) for metals and mining production activities in MWh.

	Heating value	Total MWh
Consumption of fuel (excluding feedstocks)	HHV (higher heating value)	1645629
Consumption of purchased or acquired electricity	<Not Applicable>	1586882
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	4962
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	22006
Total energy consumption	<Not Applicable>	3259478

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	No
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)
Natural Gas

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
1169820

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
79138

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
55.7

Unit
kg CO2 per GJ

Emissions factor source
National Emission factor of Diesel, in Germany for example we use th DEHSt list of Standard factors provided by the national agency (source: https://www.dehst.de/DE/service/archivsuche/archiv/SharedDocs/downloads/DE/Berichterstattung_2005-2007/EB2007_Stoffliste.html)

Comment

Fuels (excluding feedstocks)
Liquefied Petroleum Gas (LPG)

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
39834

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
64

Unit
kg CO2 per GJ

Emissions factor source
National Emission factor of Diesel, in Germany for example we use th DEHSt list of Standard factors provided by the national agency (source: https://www.dehst.de/DE/service/archivsuche/archiv/SharedDocs/downloads/DE/Berichterstattung_2005-2007/EB2007_Stoffliste.html)

Comment

Fuels (excluding feedstocks)
Diesel

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
16327

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
74.1

Unit
kg CO2 per GJ

Emissions factor source
National Emission factor of Diesel, in Germany for example we use th DEHSt list of Standard factors provided by the national agency (source: https://www.dehst.de/DE/service/archivsuche/archiv/SharedDocs/downloads/DE/Berichterstattung_2005-2007/EB2007_Stoffliste.html)

Comment

Fuels (excluding feedstocks)
Distillate Oil

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
5836

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
73.75

Unit
kg CO2 per GJ

Emissions factor source
National Emission factors of Heizöl EL, in Germany for example we use the DEHSt list of Standard factors provided by the national agency (source: https://www.dehst.de/SharedDocs/downloads/DE/stationaere_anlagen/Emissionsbericht_Leitfaden_Anhang4.pdf?__blob=publicationFile&v=3)

Comment

Fuels (excluding feedstocks)
Residual Fuel Oil

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
300982

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
78

Unit
kg CO2 per GJ

Emissions factor source

Individual National Emission factors of Coke. Verified by an external auditor during regular audits. In Lünen und Hamburg for example coke is being sampled to determine the emission factor. If the fuel is used at several sites, the average emission factor is started.

Comment

Fuels (excluding feedstocks)
Coking Coal

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
78550

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
111.5

Unit
kg CO2 per GJ

Emissions factor source
Individual National Emission factors of Coke. Verified by an external auditor during regular audits. In Lünen und Hamburg for example coke is being sampled to determine the emission factor. If the fuel is used at several sites, the average emission factor is started.

Comment

Fuels (excluding feedstocks)
Landfill Gas

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
2888

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
0

Unit
kg CO2 per GJ

Emissions factor source
Landfill gas is a biogenenic fuel

Comment

Fuels (excluding feedstocks)
Butane

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
31393

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
66.27

Unit
kg CO2 per GJ

Emissions factor source
Individual National Emission factors of Butane. Verified by an external auditor during regular audits. If the fuel is used at several sites, the average emission factor is stated.

Comment

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	22006	22006	22006	22006
Heat	0	0	0	0
Steam	306383	306383	227245	227245
Cooling	0	0	0	0

C-MM8.2d

(C-MM8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed for metals and mining production activities.

	Total gross generation (MWh) inside metals and mining sector boundary	Generation that is consumed (MWh) inside metals and mining sector boundary
Electricity	22006	22006
Heat	0	0
Steam	306383	306383
Cooling	0	0

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method
Power purchase agreement (PPA) with a grid-connected generator without energy attribute certificates

Low-carbon technology type
Hydropower

Country/region of consumption of low-carbon electricity, heat, steam or cooling
United States of America

MWh consumed accounted for at a zero emission factor
126642

Comment

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

(C-MM9.3b) Provide details on the commodities relevant to the metals production activities of your organization.

Output product
Copper

Capacity (metric tons)
1304881

Production (metric tons)
1304881

Annual production in copper-equivalent units (thousand tons)
1304

Scope 1 emissions (metric tons CO2e)
416527

Scope 2 emissions (metric tons CO2e)
853647

Scope 2 emissions approach
Market-based

Pricing methodology for-copper equivalent figure
Production represents copper output from our smelter sites. Scope 1 Emissions Copper output: Scope 1 emission, (Hamburg, Lünen, Olen, Pirdop) = 416,527 tCO2 Scope 2 Emissions Copper Output: Scope 2 (Hamburg, Lünen, Olen, Pirdop) = 853,647 tCO2

Comment
With our current production output we use nearly 100% of our capacity.

Output product
Other non-ferrous metals (Please specify) (Copper fabrication sites)

Capacity (metric tons)
380565

Production (metric tons)
380565

Annual production in copper-equivalent units (thousand tons)
380

Scope 1 emissions (metric tons CO2e)
85988

Scope 2 emissions (metric tons CO2e)
78185

Scope 2 emissions approach
Market-based

Pricing methodology for-copper equivalent figure
Output "Copper Fabrication Sites" includes copper products like rod and flat rolled products. Scope 1 Emissions Output Copper Fabrication Sites: Scope 1 emissions (Pori, Zutphen, Stolberg, Buffalo, Deutsche Giessdraht, Avellino) = 85,988 tCO2 Scope 2 Emissions Output Copper Fabrication Sites: Scope 2 emissions (Pori, Zutphen, Stolberg, Buffalo, Deutsche Giessdraht, Avellino) = 78,185 tCO2

Comment
With our current production output we use nearly 100% of our capacity.

Output product
Other non-ferrous metals (Please specify) (Production sites other than copper)

Capacity (metric tons)
655965

Production (metric tons)
655965

Annual production in copper-equivalent units (thousand tons)
656

Scope 1 emissions (metric tons CO2e)
411

Scope 2 emissions (metric tons CO2e)
9589

Scope 2 emissions approach
Market-based

Pricing methodology for-copper equivalent figure
Output "Production Sites Other Than Copper" include products as: Selenium, Brass and Aluminium granulates, Iron Silicate, etc. which are produced at our sites. Scope 1 Emissions Output "Production Sites Other Than Copper": Scope 1 emissions (Cablo, Retorte, E.R.N., Peute) = 411 tCO2 Scope 2 Emissions Output "Production Sites Other Than Copper": Scope 2 emissions (Cablo, Retorte, E.R.N., Peute) = 9589 tCO2

Comment
With our current production output we use nearly 100% of our capacity.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	

C-MM9.6a

(C-MM9.6a) Provide details of your organization's investments in low-carbon R&D for metals and mining production activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Please select	<Not Applicable>	Please select		

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No third-party verification or assurance

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Reasonable assurance

Attach the statement
CDP-verification-Aurubis Bulgaria 2019.pdf
CDP_Statement_aurubis_lünen_2019_rev1.pdf
CDP_Statement_aurubis_hh_2019_rev1.pdf
CDP_Statement_aurubis_dg_2019.pdf

Page/ section reference
All papers are only for justification of Scope 1 emissions.

Relevant standard
European Union Emissions Trading System (EU ETS)

Proportion of reported emissions verified (%)
77

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach
Scope 2 market-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Reasonable assurance

Attach the statement
CDP Bestätigung_Aurubis AG_signed-2020.pdf

Page/ section reference
The paper is only for justification of Scope 2 emissions.

Relevant standard
ISAE3000

Proportion of reported emissions verified (%)
67

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?
In progress

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?
Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.
EU ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

EU ETS

% of Scope 1 emissions covered by the ETS
85.7

% of Scope 2 emissions covered by the ETS

Period start date
January 1 2019

Period end date
December 31 2019

Allowances allocated
807014

Allowances purchased
0

Verified Scope 1 emissions in metric tons CO2e
430809

Verified Scope 2 emissions in metric tons CO2e

Details of ownership
Facilities we own and operate

Comment

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

By operating state-of-the-art, innovative plant technologies, Aurubis holds a leading position in climate and environmental protection in primary and secondary copper production. Today, continued high capital expenditure for environmental protection leads to relatively small improvements, as a leading global environmental standard has already been achieved and there are technological boundaries in some instances, as in the case of emission reduction. Case study

Situation: Aurubis is since 2013 part of the EU-ETS. We have been one of the forerunners in adapting to new emission-lowering technologies. We have started early on to invest in efficient technologies and continue to further optimize our processes also in the future. Task: For us, as an multi metal producer we are in a price taking position, additional costs cannot be handed to customers. Action: Therefore, investing into energy efficiency is an important aspect of our strategy, since it helps us to maintain our current competitive position. Furthermore, the system of the EU-ETS is set-up in a way that producers, who use their energy multiple times, benefit from certificates they would otherwise need to produce the energy. ResultsAdditional costs are not only caused by the Emission Trading Scheme, but also from the administrative burden connected to it, as well as increased electricity prices through the included CO2-component. Especially for us as an energy intensive industry these also make up a big share of costs as well, because only 50% of our indirect carbon costs are compensated. Therefore, it is of our own interest to further reduce emissions. The certificates that we get are needed to cover part of the additional electricity costs, which cannot be handed down the value chain.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

Navigate GHG regulations
Stakeholder expectations
Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Stress test investments
Identify and seize low-carbon opportunities

GHG Scope

Scope 1
Scope 2

Application

The internal price of carbon is used for our medium-term planning of energy prices as well as the medium-term planning of our CO2 Strategy.

Actual price(s) used (Currency /metric ton)

25

Variance of price(s) used

For short term projections the current EEX Price of carbon is used. For projections until 2030 the 2030 target price of the EU Commission is used, which is 30€.

Type of internal carbon price

Implicit price

Impact & implication

Aurubis is since 2013 part of the EU-ETS. The EU-ETS means direct and indirect carbon costs for Aurubis. With an implicit carbon price we are able to describe this cost burden today, but also in the future. All new projects with relevance to the energy supply and consumption are checked by Corporate Energy and Climate Affairs and/or the responsible energy departments on site. Within the assessment of the project, carbon costs are considered, either as direct costs or as indirect costs in the electricity price or both.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our customers

Yes, other partners in the value chain

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement

Collaboration & innovation

Details of engagement

Other, please specify

% of customers by number

20

% of customer - related Scope 3 emissions as reported in C6.5

11.5

Portfolio coverage (total or outstanding)

<Not Applicable>

Please explain the rationale for selecting this group of customers and scope of engagement

Aurubis' customers are generally companies in the processing industry. When copper is processed to fabricate final products, production waste and residues accumulate. This includes materials with very high copper contents, such as turnings and millings. Residue fractions, such as slags and industrial residues, result from other processing methods. Aurubis offers its customers collection options for most production residues and wastes and guarantees professional, environmentally sound recycling conforming to the highest standards. Aurubis is in a position to reintroduce a large variety of metallic scrap to the material cycle. In this way, Aurubis customers can obtain the copper again within a short time and use it in their own production.

Impact of engagement, including measures of success

Our multi-metal recycling ensures that the material cycle for copper and other metals is closed. Copper used in products can be recycled over and over again. This ensures that valuable raw materials are used, resources are conserved and environmental impacts are minimized. To measure the success of this engagement we monitor the level of target achievement of our Sustainability Goal to establish a "closing the loop" system with a minimum of five customers until 2018. With the implementation of the "closing-the-Loop" System our Scope 3 emissions can be reduced. For example, the emissions caused by upstream transportion of raw materials which account for 10% of our total Scope 3 emissions can be reduced by this approach.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Strategy for prioritizing engagement:

Climate protection is established in the Aurubis Sustainability Strategy. Responsibility in the supply chain was identified as an important issue during the Sustainability Strategy development process. We are intensifying the dialogue along the value chain to strengthen environmental and social standards. We also prioritize engagements in the field of climate friendly mobility management with regard to the following criteria:

- Contribution to a successful business (identification of relevant mobility figures as basis of improvement measures, reducing mobility costs and increasing efficiency)

- Benefit for the employees of the sites (loyalty and motivation, health promotion, safe work route)

- Benefit for people and the environment located in the region of the sites (environmental and climate protection)

Methods of engagement:

We try to minimize transports in the supply chain. We maintain for example a dialogue with suppliers and customers to tap additional logistics synergies. We are engaged in initiatives and decided to commit to the "Partnership for Air Quality and Low-emission Mobility", a way to reduce emissions caused by employees and initiated by the city of Hamburg, which was signed by Aurubis and 11 other companies in September 2012. The objective of the partnership is to reduce nitrogen dioxide emissions, which are caused by private transport in particular. As part of the air quality partnership, an action week was held with the employees at the Hamburg site, during which a number of ideas were developed and steps were coordinated. The newly developed concepts whose implementation is being reviewed include an offer for e-bike leasing, the construction of a bike shelter at the nearby Veddel train station and better access to the plant with public transportation options or a company bus shuttle. In 2016, Aurubis also started participating in a project, sponsored by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, called MOBIL.PRO.FIT. Part of the strategic approach is the participation of Aurubis managers in workshops regarding mobility-relevant topics. To transfer this new knowledge into a company-specific and emission-reducing mobility management model, external consultants and company representatives work closely together. This project aims to develop efficient and climate-friendly mobility management within the participating companies. An important part of this project is acquiring an analysis of commuting habits of employees to point out room for improvement in the form of going to work by bike, public transportation or forming carpools. This way Aurubis as a company and its employees work together to reduce the emissions of commuting as a part of the climate change strategy. The project fits perfectly into the Aurubis Sustainability Strategy because it is a clear objective of Aurubis that every employee should live the Sustainability Strategy each day and contribute to implementing the agreed measures and targets. Measures of success Aurubis will be certified as a "MOBIL.PRO.FIT-business" if the company achieves all contract-specific requirements. A committee of organization implementing the MOBIL.PRO.FIT project will therefore visit the company and examine if the required measures have been taken. Aurubis managers already participated in workshops. In addition, they will be involved further with this project. In September 2016, Aurubis Hamburg opened the "4. Aktionswoche der Luftgütepartner Hamburgs" for promoting low-emission mobility.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Direct engagement with policy makers

Trade associations

Funding research organizations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Cap and trade	Support with minor exceptions	Aurubis contributes constructively to the policy dialogue at Member State and EU institution level and at each stage of policy development, such as stakeholder consultation, amendment discussions, policy reviews etc., directly as well as through associations such as IFIEC, Eurometaux, ECI, Agoria, WVM, etc.	The price taker characteristic of exchange-traded commodities such as copper should be recognized as an eligibility criterion to receive the highest degree of carbon leakage protection, by receiving full free allocation for direct emissions and full compensation in all Member States, for indirect emissions at the best performance level, in a predictable way. This carbon leakage protection will ensure that the investments to expand production and to innovate further will continue to be made in the most energy-efficient European plants. These plants produce products in the most environmentally friendly way possible to help the decarbonization of European society and the world.
Energy efficiency	Support with minor exceptions	Aurubis participates in intense discussions regarding the implementation of article 8 of the European Energy Efficiency Directive (EED) into national law and the practical implementation, especially in Germany (EDL-G), via position papers, direct engagement with policymakers and national authorities.	EU energy efficiency directive requires companies in article 8 to perform energy audits unless they are small/medium enterprises (SMEs). Owing to the definition of the Commission, subsidiaries of the Group are not accepted as SMEs even though their energy consumption is insignificant. This could result in a disproportionate amount of audits to be performed across Europe and hence defies the intention of the Commission to generate an instrument that benefits industry without burdening it unnecessarily with administration. In Aurubis' opinion, this should be considered in the revision of the directive or should be harmonized via national legislation in coordination with the EU.
Other, please specify (Circular Economy)	Support	The European Commission published a Circular Economy Package (CEP) in December 2015, which includes three very concrete revisions of key legislations the Waste Framework, the Packaging and the Landfilling Directive, as well as a comprehensive Action Plan setting out further measures until 2018. In general Aurubis very much supports the Circular Economy Package as it will foster recycling and requests a coherent harmonised implementation by Member States (MS) to avoid inconsistencies for companies who are present in various European Union MS.	Aurubis supports the idea of strengthening eco-design measures towards more Circular Economy and the request to Circular Europe Network to develop standards for product recyclability. - Aurubis asks for measures to stop illegal shipments of electrical waste to non-EU countries. - In the framework of the circular economy, some call for banning or substituting hazardous materials to reduce their presence in material loops and recycled materials. In the context of metals recycling however it is often complex or even currently impossible to substitute them as metals have unique properties which support given functionalities. As new metals cannot be invented substituting a metal is often done by using another metal. In this respect Aurubis supports the Action Plan which proposes the analysis of policy options to address the interface between chemicals, products and waste legislation. - Applying a strictly hazard-based REACH authorization process for substances commonly present in metal production/recycling could then lead to a decrease in the amount of waste recycled in Europe and would most likely trigger disposal and landfill or (illegal) shipment of valuable materials outside the EU. - Aurubis supports the new definition of “final recycling process” which comprises all steps of the recycling value chain as well as we support the proposal for EU standards of material efficient recycling of electronic waste. - Aurubis welcomes the general requirements for Extended Producer Responsibility (EPR) as a step towards more transparency and efficiency of the EPR schemes especially on household electronic goods. - Aurubis strongly recommends to secure regular monitoring of end-of-waste export flows and to avoid the proliferation of national end-of-waste status which would trigger confusion and challenges to control the validity of the status. - In general: The Action Plan contains 54 measures throughout the life cycle from production to waste disposal. It is important to achieve a proper implementation of the action plan and revisions of the Directive.

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association
Eurometaux

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
Eurometaux consistently strives to ensure a balance between energy, climate and industrial policies for the best performing company level. Furthermore, Eurometaux supports sustainability, the circular economy and increased Recycling.

How have you influenced, or are you attempting to influence their position?
Aurubis is represented in the governing body of Eurometaux and is the Chair of the Energy and Climate Change committee. Additionally, Aurubis is the Chair of the Sustainability committee promoting topics such as the circular economy and recycling. Aurubis actively participates in enforcing Eurometaux's climate change agenda, which is raising the bar for all EM members on the issues of decarbonization, sustainability, circular economy and innovation, by leading a continuous and constructive dialogue with EU institutions to maintain the competitiveness of energy-intensive industries in Europe.

Trade association
European Copper Institute

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
ECI Annual Report 2015: The copper industry needs transparent, long-term energy and climate change policies that will deliver competitively priced energy. Reforms to the Emissions Trading Scheme must address the competitiveness gap faced by the EU's energy-intensive industries. The ambitious outcomes from COP21 must not result in undue costs for Europe's best performers. Continued recognition that the copper sector is a price taker, due to commodity prices being global, must be taken into account when determining the risk of carbon leakage. Finally, a more harmonized, EU-wide scheme needs to provide full compensation for both direct and indirect emissions based on actual production levels.

How have you influenced, or are you attempting to influence their position?
Aurubis is represented on the Board of Directors of ECI and therefore is able to contribute to the strategic Position on climate change. Additionally, Aurubis experts in the domains of energy and climate change strongly influence this position by participating in the relevant thematic workshops organized by ECI.

Trade association
International Copper Association

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
Europe's copper industry shares the EC's vision for a low-carbon economy and will pursue it with all of the resources at its disposal. The Support of EC and other policymakers is needed for a reasoned balance between the energy needed to manufacture the building blocks of that new economy and the overarching goals for reduced energy demand and carbon emissions.

How have you influenced, or are you attempting to influence their position?
Aurubis is represented on the Board of Directors of ICA and therefore is able to contribute to the strategic position on climate change. Additionally, Aurubis experts in the domains of energy and climate change strongly influence this position by participating in the relevant thematic workshops organized by ECI.

Trade association
Wirtschaftsvereinigung Metalle

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
The Non-Ferrous metals industry believes that society, economy and politics have a responsibility to make the energy transition a success and climate protection as effective and economically efficient as possible. This is only feasible together with the industry.

How have you influenced, or are you attempting to influence their position?
Aurubis as a member of the Executive Committee contributes actively in shaping the association's position.

C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?
No

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Within the Aurubis Group, we coordinate our political activities on a monthly basis in a routine meeting led by our CEO. The participants are the members of the Executive Board and Energy & Climate Affairs as well as the Sustainability Manager, the Corporate Environmental Department and heads of corporate functions involved in political issues. The aim of the call is to report on relevant political developments and streamline our positions for the Aurubis strategy.

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication
In mainstream reports

Status
Complete

Attach the document
aurubis_annual-report_fy_18_19_2019_12_11.pdf

Page/Section reference
Numerbers on p. 47, further information p. 37,45,98.

Content elements
Strategy
Risks & opportunities
Emissions figures
Other metrics

Comment

Publication
In voluntary sustainability report

Status
Complete

Attach the document
aurubis_sustainabilityreport_2017_18.pdf

Page/Section reference
p.32

Content elements
Strategy
Emissions figures

Comment

Publication
In voluntary communications

Status
Complete

Attach the document
2019_aurubis_ag_environmental_statement_en.pdf

Page/Section reference
p.25

Content elements
Emissions figures
Other metrics

Comment

C15. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	CEO	Chief Executive Officer (CEO)

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	11897000000

SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

Yes

SC0.2a

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	DE	0006766504

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	The establishment of a common approach to enable the private sector to assess, display and benchmark the environmental performance of products, services and companies based on the comprehensive assessment of environmental Impacts over the life-cycle.

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

Aurubis continues its involvement in the Environmental Footprint project. With the development of the environmental footprint, the EU Commission wants to create a consistent method for calculating the environmental performance of products and organizations throughout Europe, assess them and facilitate comparisons. In 2013 the Commission published the Environmental Footprint (EF) methodology to measure and communicate the life cycle environmental performance of products (Product Environmental Footprint, PEF) and organizations (Organisational Environmental Footprint, OEF) , and launched a pilot phase. Aurubis was active in both areas. Aurubis took a leading role in the OEF pilot on “Copper Production”, which was coordinated by the research center of the EU Commission (Joint Research Center, JRC). For the PEF pilot phase, Aurubis worked together with the European organization Eurometaux, the European Copper Institute and other companies from the non-ferrous metals and steel industries on the pilot project “Metal Sheet Metal for Various Applications”. In 2017 we finalised the OEF sector-specific rules for copper production and tested how to communicate Environmental Footprint information to stakeholders and the effectiveness of the communication vehicle. The OEF sector rules for copper production have been successfully approved by the Steering Committee on 15 February 2018. The Copper OEF develops a harmonized method to measure and communicate the life cycle environmental performance of copper producing companies, and well demonstrates the positive aspects of copper metallurgy and multi-metal recycling. The PEF category rules for metal sheet have been also finalised and were approved in November 2018. The Environmental Footprint pilot phase ended in April 2018 and a transition phase is now established until possible adoption of policies implementing the Product Environmental Footprint (PEF) and Organisation Environmental Footprint (OEF) methods. Aurubis will continue to contribute to the further developments of the EF methodology during the transition phase. As part of its commitment to sustainable Development, the copper industry is committed to providing data and information to enable users of copper to evaluate its impacts and benefits across the life cycle, from raw material extraction to end-of life recycling. Aurubis has been involved for many years in life cycle assessment of copper cathode and contributed to the generation of cradle-to-gate life cycle inventory (LCI) that evaluates the environmental impacts associated with global copper cathode production (in cooperation with the International Copper Association).The latest update of the environmental profile of global copper cathode has been released by the International Copper Association at the beginning of 2018. Aurubis has also performed life cycle assessment studies with the purpose to conduct Environmental product declarations (EPD) on the basis of EN 15804 and ISO 14025 for copper and copper alloys sheets used for architectural applications.The Environmental Product Declarations (EPD) for six Aurubis Nordic products of copper /copper alloys sheets are published by the Institut Bauen und Umwelt e.V.. A challenge remains: the yearly update of the database.

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?
Please select

SC3.1

(SC3.1) Do you want to enroll in the 2020-2021 CDP Action Exchange initiative?
No

SC3.2

(SC3.2) Is your company a participating supplier in CDP’s 2019-2020 Action Exchange initiative?
No

SC4.1

(SC4.1) Are you providing product level data for your organization’s goods or services?
Yes, I will provide data

SC4.1a

(SC4.1a) Give the overall percentage of total emissions, for all Scopes, that are covered by these products.

SC4.2a

(SC4.2a) Complete the following table for the goods/services for which you want to provide data.

Name of good/ service
Copper Production

Description of good/ service
Copper production refers to primary and secondary copper production at the Hamburg, Lünen, Olen, and Pirdop sites. The product level data refers to the Scope 1 emissions.

Type of product
Final

SKU (Stock Keeping Unit)
tons

Total emissions in kg CO2e per unit
210

±% change from previous figure supplied

Date of previous figure supplied

Explanation of change

Methods used to estimate lifecycle emissions
Please select

SC4.2b

(SC4.2b) Complete the following table with data for lifecycle stages of your goods and/or services.

SC4.2c

(SC4.2c) Please detail emissions reduction initiatives completed or planned for this product.

Name of good/ service	Initiative ID	Description of initiative	Completed or planned	Emission reductions in kg CO2e per unit

SC4.2d

(SC4.2d) Have any of the initiatives described in SC4.2c been driven by requesting CDP Supply Chain members?
Please select

Submit your response

In which language are you submitting your response?
English

Please confirm how your response should be handled by CDP

	I am submitting to	Public or Non-Public Submission	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Investors Customers	Public	Yes, submit Supply Chain Questions now

Please confirm below
I have read and accept the applicable Terms