C0. Introduction

(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.

<table>
<thead>
<tr>
<th>Reporting year</th>
<th>Start date</th>
<th>End date</th>
<th>Indicate if you are providing emissions data for past reporting years</th>
<th>Select the number of past reporting years you will be providing emissions data for</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1, 2019</td>
<td>December 31, 2019</td>
<td>Please select</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
</tr>
</tbody>
</table>

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-MMO.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.

<table>
<thead>
<tr>
<th>Position of individual(s)</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Executive Officer (CEO)</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Frequency with which climate-related issues are a scheduled agenda item</th>
<th>Governance mechanisms into which climate-related issues are integrated</th>
<th>Scope of board-level oversight</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled - some meetings</td>
<td>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</td>
<td>&lt;Not Applicable&gt;</td>
<td>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 group's business strategy. An example of how a governance mechanism selected contributes to the board's 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.</td>
</tr>
</tbody>
</table>

C1.2

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

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

C1.2a
C1.3 Do you provide incentives for the management of climate-related issues, including the attainment of targets?

<table>
<thead>
<tr>
<th>Row 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Entitled to incentive</th>
<th>Type of incentive</th>
<th>Activity (incentivized)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Monetary reward</td>
<td>Efficiency project</td>
<td>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.</td>
</tr>
<tr>
<td>President</td>
<td>Monetary reward</td>
<td>Emissions reduction target</td>
<td>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.</td>
</tr>
<tr>
<td>Energy manager</td>
<td>Monetary reward</td>
<td>Efficiency target</td>
<td>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.</td>
</tr>
<tr>
<td>Environment/Sustainability manager</td>
<td>Non-monetary reward</td>
<td>Other (please specify) (Compliance with Sustainability strategy)</td>
<td>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.</td>
</tr>
<tr>
<td>All employees</td>
<td>Monetary reward</td>
<td>Emissions reduction project Energy reduction target Efficiency project Behavior change related indicator Supply chain engagement</td>
<td>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.</td>
</tr>
</tbody>
</table>
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?

<table>
<thead>
<tr>
<th></th>
<th>From (years)</th>
<th>To (years)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Medium-term</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Long-term</td>
<td>3</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

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?

<table>
<thead>
<tr>
<th>Risk Type</th>
<th>Primary Climate-Related Risk Driver</th>
<th>Inclusion in risk assessment</th>
<th>Relevance &amp; exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current regulation</td>
<td>Relevant, always included</td>
<td>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 Energies Act (EEG), the emissions trade, grid changes 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.</td>
<td></td>
</tr>
<tr>
<td>Environmental regulation</td>
<td>Relevant, always included</td>
<td>Inclusion in risk assessment: Aurubis assesses and values the risk quarterly. However, it has to be stated that Aurubis currently cannot offer 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 heat) that normally do not fulfill 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 price by renewables).</td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>Relevant, sometimes included</td>
<td>Inclusion in risk assessment: Aurubis assesses the values the risk quarterly. However, it has to be stated that Aurubis currently cannot offer 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 heat) that normally do not fulfill 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 price by renewables).</td>
<td></td>
</tr>
<tr>
<td>Legal</td>
<td>Relevant, always included</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Market</td>
<td>Not relevant, explanation provided</td>
<td>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 Klimaschutz ) 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 reporting such as the “CDP” (formerly Carbon Disclosure Project).</td>
<td></td>
</tr>
<tr>
<td>Reputation</td>
<td>Relevant, always included</td>
<td>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 Klimaschutz ) 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 reporting such as the “CDP” (formerly Carbon Disclosure Project).</td>
<td></td>
</tr>
<tr>
<td>Acute physical</td>
<td>Relevant, always included</td>
<td>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. Rheine 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 Brunoßedt, 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.</td>
<td></td>
</tr>
<tr>
<td>Chronic physical</td>
<td>Relevant, always included</td>
<td>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 internal control 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.</td>
<td></td>
</tr>
</tbody>
</table>
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 96% 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 CO2 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 CO2 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 CO2 costs, 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 CO2 costs due to increases in electricity prices resulting from the supply shortage of available CO2 certificates 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 CO2 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 CO2 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

<table>
<thead>
<tr>
<th>Reputation</th>
<th>Increased stakeholder concern or negative stakeholder feedback</th>
</tr>
</thead>
</table>

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

**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
Potential financial impact figure – minimum (currency)
20000000

Potential financial impact figure (currency)
250000

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. 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 side, 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)
100000000

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

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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 be used in the production of new cathodes. Secondly, Aurubis is working closely together with direct customers 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.

<table>
<thead>
<tr>
<th>Climate-related scenarios and models applied</th>
<th>Details</th>
</tr>
</thead>
</table>
| IEA 450                                     | Selection of the scenario. Aurubis participated actively in the development of the IEA’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 were organization considered. The IEA 450 scenario models a 2°C future until 2050. The inherent energy transformation from fossil to renewable, the vitality 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 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 50€/tCO2. With these assumptions we projected the inherent cost burden for Aurubis. Case study Situation: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 1: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 2: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 3: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 4: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 5: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 6: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 7: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 8: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 9: The inherent energy transformation from fossil to renewable, the vitality 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.

Task 10: The inherent energy transformation from fossil to renewable, the vitality 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.
(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.

<table>
<thead>
<tr>
<th>Description of influence</th>
</tr>
</thead>
</table>
| Both primary and secondary raw materials are becoming more complex, in that their copper contents are decreasing and the concentrations of impure 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 

<table>
<thead>
<tr>
<th>Row 1</th>
<th>Revenues Direct costs Access to capital</th>
</tr>
</thead>
</table>
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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.

<table>
<thead>
<tr>
<th>Target reference number</th>
<th>Abs 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year target was set</td>
<td>2013</td>
</tr>
<tr>
<td>Target coverage</td>
<td>Company-wide</td>
</tr>
<tr>
<td>Scope(s) (or Scope 3 category)</td>
<td>Scope 1+2 (market-based)</td>
</tr>
<tr>
<td>Base year</td>
<td>2013</td>
</tr>
<tr>
<td>Covered emissions in base year (metric tons CO2e)</td>
<td>1162321</td>
</tr>
<tr>
<td>Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)</td>
<td>100</td>
</tr>
<tr>
<td>Target year</td>
<td>2022</td>
</tr>
<tr>
<td>Targeted reduction from base year (%)</td>
<td>8.6</td>
</tr>
<tr>
<td>Covered emissions in target year (metric tons CO2e) [auto-calculated]</td>
<td>1062361.394</td>
</tr>
<tr>
<td>Covered emissions in reporting year (metric tons CO2e)</td>
<td>1444347</td>
</tr>
<tr>
<td>% of target achieved [auto-calculated]</td>
<td>-282.13996761852</td>
</tr>
<tr>
<td>Target status in reporting year</td>
<td>Underway</td>
</tr>
</tbody>
</table>

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 Sustainability 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.

<table>
<thead>
<tr>
<th>Number of initiatives</th>
<th>Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under investigation</td>
<td>1</td>
</tr>
<tr>
<td>To be implemented*</td>
<td>120000</td>
</tr>
<tr>
<td>Implementation commenced*</td>
<td>1651</td>
</tr>
<tr>
<td>Implementation commenced*</td>
<td>20000</td>
</tr>
<tr>
<td>Implementated*</td>
<td>3758</td>
</tr>
<tr>
<td>Not to be implemented</td>
<td>0</td>
</tr>
</tbody>
</table>

C4.3b

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

<table>
<thead>
<tr>
<th>Initiative category &amp; Initiative type</th>
<th>Estimated annual CO2e savings (metric tonnes CO2e)</th>
<th>Scope(s)</th>
<th>Voluntary/Mandatory</th>
<th>Annual monetary savings (unit currency – as specified in C0.4)</th>
<th>Investment required (unit currency – as specified in C0.4)</th>
<th>Payback period</th>
<th>Estimated lifetime of the initiative</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-carbon energy consumption</td>
<td>20000</td>
<td>Scope 1</td>
<td>Voluntary</td>
<td>500000</td>
<td>4000000</td>
<td>4-10 years</td>
<td>16-20 years</td>
<td></td>
</tr>
<tr>
<td>Other, please specify (Waste heat recovery and utilization to replace steam (generated by natural gas).)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

C4.3c

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

<table>
<thead>
<tr>
<th>Method</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal price on carbon</td>
<td>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.</td>
</tr>
<tr>
<td>Compliance with regulatory requirements/standards</td>
<td>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.</td>
</tr>
<tr>
<td>Internal incentives/recognition programs</td>
<td>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.</td>
</tr>
</tbody>
</table>

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 class/es/ product type/s**
<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 class/es/ product type/s**
<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.

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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)**
  - 518,789

**Comment**

- **Scope 2 (location-based)**

- **Base year start**
  - January 1, 2012

- **Base year end**
  - December 31, 2012

- **Base year emissions (metric tons CO2e)**
  - 905,666

**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)**
  - 1,176,993

**Comment**

---

(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)**
  - 502,926

**Comment**

- <Not Applicable>

(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**

---

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.


---

C6. Emissions data

---

C6.1

---

C6.2
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

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**

**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**

**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**

**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

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.

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Scope 1 emissions (metric tons CO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States of America</td>
<td>40425</td>
</tr>
<tr>
<td>EU28</td>
<td>462501</td>
</tr>
</tbody>
</table>

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.
By facility
(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Scope 1 emissions (metric tons CO2e)</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamburg, Germany</td>
<td>156601</td>
<td>53.521576</td>
<td>10.03331</td>
</tr>
<tr>
<td>Pirdop, Bulgaria</td>
<td>56706</td>
<td>42.703374</td>
<td>24.177048</td>
</tr>
<tr>
<td>Lünen, Germany</td>
<td>16113</td>
<td>51.60646</td>
<td>7.50755</td>
</tr>
<tr>
<td>Olten, Belgium</td>
<td>42107</td>
<td>51.177305</td>
<td>4.879092</td>
</tr>
<tr>
<td>Stolberg, Germany</td>
<td>3504</td>
<td>50.759048</td>
<td>6.234986</td>
</tr>
<tr>
<td>Buffalo, USA</td>
<td>40425</td>
<td>42.948404</td>
<td>-78.892807</td>
</tr>
<tr>
<td>Zutphen, Netherlands</td>
<td>4953</td>
<td>52.157565</td>
<td>6.206821</td>
</tr>
<tr>
<td>Port, Finland</td>
<td>7308</td>
<td>61.462226</td>
<td>21.861525</td>
</tr>
<tr>
<td>Avellino, Italy</td>
<td>16108</td>
<td>40.914388</td>
<td>14.790612</td>
</tr>
<tr>
<td>CABLIO Metall-Recycling und Handel GmbH, Fehrbellin, Deutschland</td>
<td>40</td>
<td>52.79407</td>
<td>12.76509</td>
</tr>
<tr>
<td>E.R.N., Hamburg, Germany</td>
<td>26</td>
<td>53.526343</td>
<td>10.029339</td>
</tr>
<tr>
<td>Retorte, Hamburg, Germany</td>
<td>337</td>
<td>49.49038</td>
<td>11.24973</td>
</tr>
<tr>
<td>Peute Baustoffe, Hamburg, Germany</td>
<td>9</td>
<td>53.51133</td>
<td>10.02728</td>
</tr>
<tr>
<td>Deutsche Giessdraht, Emmerich, Germany</td>
<td>14290</td>
<td>51.82764</td>
<td>6.26550</td>
</tr>
</tbody>
</table>

(C-C7.4/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.

<table>
<thead>
<tr>
<th>Gross Scope 1 emissions, metric tons CO2e</th>
<th>Net Scope 1 emissions, metric tons CO2e</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement production activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Chemicals production activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Coal production activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Electric utility activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Metals and mining production activities</td>
<td>502926</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Oil and gas production activities (upstream)</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Oil and gas production activities (midstream)</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Oil and gas production activities (downstream)</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Steel production activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Transport OEM activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Transport services activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Scope 2, location-based (metric tons CO2e)</th>
<th>Scope 2, market-based (metric tons CO2e)</th>
<th>Purchased and consumed electricity, heat, steam or cooling (MWh)</th>
<th>Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States of America</td>
<td>27800</td>
<td>19953</td>
<td>22349</td>
<td>126642</td>
</tr>
<tr>
<td>EU28</td>
<td>745764</td>
<td>921468</td>
<td>1437891</td>
<td>0</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Facility</th>
<th>Scope 2, location-based (metric tons CO₂e)</th>
<th>Scope 2, market-based (metric tons CO₂e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamburg, Germany</td>
<td>277057</td>
<td>480312</td>
</tr>
<tr>
<td>Pirdop, Bulgaria</td>
<td>288593</td>
<td>177981</td>
</tr>
<tr>
<td>Lünen, Germany</td>
<td>81385</td>
<td>113274</td>
</tr>
<tr>
<td>Olten, Belgium</td>
<td>35331</td>
<td>82080</td>
</tr>
<tr>
<td>Stolberg, Germany</td>
<td>16183</td>
<td>20896</td>
</tr>
<tr>
<td>Buffalo, USA</td>
<td>11800</td>
<td>19953</td>
</tr>
<tr>
<td>Zutphen, Netherlands</td>
<td>23963</td>
<td>18982</td>
</tr>
<tr>
<td>Port, Finland</td>
<td>4391</td>
<td>8169</td>
</tr>
<tr>
<td>Avellino, Italy</td>
<td>5692</td>
<td>4627</td>
</tr>
<tr>
<td>Cabilo, Germany</td>
<td>5749</td>
<td>8015</td>
</tr>
<tr>
<td>E.R.N, Germany</td>
<td>96</td>
<td>133</td>
</tr>
<tr>
<td>Retorte, Germany</td>
<td>843</td>
<td>1175</td>
</tr>
<tr>
<td>Peine Baustoffe, Germany</td>
<td>190</td>
<td>265</td>
</tr>
<tr>
<td>Emmerich, Germany</td>
<td>6962</td>
<td>5057</td>
</tr>
</tbody>
</table>

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

(C7.7/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.

<table>
<thead>
<tr>
<th>Sector Production Activities</th>
<th>Scope 2, location-based, metric tons CO₂e</th>
<th>Scope 2, market-based (if applicable), metric tons CO₂e</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement production activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Chemicals production activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Coal production activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Metals and mining production activities</td>
<td>757564</td>
<td>941421</td>
<td></td>
</tr>
<tr>
<td>Oil and gas production activities (upstream)</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Oil and gas production activities (midstream)</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Oil and gas production activities (downstream)</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Steel production activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Transport OEM activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Transport services activities</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
</tbody>
</table>

C7.9

(C7.8) 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.

<table>
<thead>
<tr>
<th>Reason for Change</th>
<th>Change in emissions (metric tons CO₂e)</th>
<th>Direction of change</th>
<th>Emissions value (percentage)</th>
<th>Please explain calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in renewable energy consumption</td>
<td>0</td>
<td>No change</td>
<td>0</td>
<td>no change</td>
</tr>
<tr>
<td>Other emissions reduction activities</td>
<td>17358</td>
<td>Decreased</td>
<td>1.2</td>
<td>Optimization measures, please see implemented CO2 reduction measures</td>
</tr>
<tr>
<td>Diversement</td>
<td>0</td>
<td>No change</td>
<td>0</td>
<td>no change</td>
</tr>
<tr>
<td>Acquisitions</td>
<td>0</td>
<td>No change</td>
<td>0</td>
<td>no change</td>
</tr>
<tr>
<td>Mergers</td>
<td>0</td>
<td>No change</td>
<td>0</td>
<td>no change</td>
</tr>
<tr>
<td>Change in output</td>
<td>64054</td>
<td>Decreased</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>Change in methodology</td>
<td>0</td>
<td>No change</td>
<td>0</td>
<td>no change</td>
</tr>
<tr>
<td>Change in boundary</td>
<td>0</td>
<td>No change</td>
<td>0</td>
<td>no change</td>
</tr>
<tr>
<td>Change in physical operating conditions</td>
<td>0</td>
<td>No change</td>
<td>0</td>
<td>no change</td>
</tr>
<tr>
<td>Unidentified</td>
<td>0</td>
<td>No change</td>
<td>0</td>
<td>no change</td>
</tr>
<tr>
<td>Other</td>
<td>69990</td>
<td>Increased</td>
<td>4.8</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of fuel (excluding feedstocks)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Consumption of purchased or acquired electricity</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Consumption of purchased or acquired heat</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Consumption of purchased or acquired steam</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Consumption of purchased or acquired cooling</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Generation of electricity, heat, steam, or cooling</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

C8.2a

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

<table>
<thead>
<tr>
<th>Activity</th>
<th>Heating value</th>
<th>MWh from renewable sources</th>
<th>MWh from non-renewable sources</th>
<th>Total (renewable and non-renewable) MWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of fuel (excluding feedstocks)</td>
<td>HHV (higher heating value)</td>
<td>2888</td>
<td>1642741</td>
<td>1645629</td>
</tr>
<tr>
<td>Consumption of purchased or acquired electricity</td>
<td>&lt;Not Applicable&gt;</td>
<td>126642</td>
<td>1460239</td>
<td>1586882</td>
</tr>
<tr>
<td>Consumption of purchased or acquired heat</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Consumption of purchased or acquired steam</td>
<td>&lt;Not Applicable&gt;</td>
<td>0</td>
<td>4962</td>
<td>4962</td>
</tr>
<tr>
<td>Consumption of purchased or acquired cooling</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Consumption of self-generated non-fuel renewable energy</td>
<td>&lt;Not Applicable&gt;</td>
<td>22006</td>
<td>&lt;Not Applicable&gt;</td>
<td>22006</td>
</tr>
<tr>
<td>Total energy consumption</td>
<td>&lt;Not Applicable&gt;</td>
<td>315136</td>
<td>3107943</td>
<td>3259478</td>
</tr>
</tbody>
</table>

C-MM8.2a

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

<table>
<thead>
<tr>
<th>Activity</th>
<th>Heating value</th>
<th>Total MWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of fuel (excluding feedstocks)</td>
<td>HHV (higher heating value)</td>
<td>1645629</td>
</tr>
<tr>
<td>Consumption of purchased or acquired electricity</td>
<td>&lt;Not Applicable&gt;</td>
<td>1586882</td>
</tr>
<tr>
<td>Consumption of purchased or acquired heat</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Consumption of purchased or acquired steam</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Consumption of purchased or acquired cooling</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Consumption of self-generated non-fuel renewable energy</td>
<td>&lt;Not Applicable&gt;</td>
<td>22006</td>
</tr>
<tr>
<td>Total energy consumption</td>
<td>&lt;Not Applicable&gt;</td>
<td>3259478</td>
</tr>
</tbody>
</table>

C8.2b

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

<table>
<thead>
<tr>
<th>Application of fuel consumption</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of fuel for the generation of electricity</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Consumption of fuel for the generation of heat</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Consumption of fuel for the generation of steam</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Consumption of fuel for the generation of cooling</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Consumption of fuel for co-generation or tri-generation</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
(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**


**Comment**

**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**


**Comment**

**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

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 biogenic 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.

C8.2d

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

<table>
<thead>
<tr>
<th></th>
<th>Total Gross generation (MWh)</th>
<th>Generation that is consumed by the organization (MWh)</th>
<th>Gross generation from renewable sources (MWh)</th>
<th>Generation from renewable sources that is consumed by the organization (MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>22006</td>
<td>22006</td>
<td>22006</td>
<td>22006</td>
</tr>
<tr>
<td>Heat</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Steam</td>
<td>306383</td>
<td>306383</td>
<td>227245</td>
<td>227245</td>
</tr>
<tr>
<td>Cooling</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th></th>
<th>Total gross generation (MWh) inside metals and mining sector boundary</th>
<th>Generation that is consumed (MWh) inside metals and mining sector boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>22006</td>
<td>22006</td>
</tr>
<tr>
<td>Heat</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Steam</td>
<td>306383</td>
<td>306383</td>
</tr>
<tr>
<td>Cooling</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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)
416227

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.

Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

<table>
<thead>
<tr>
<th>Investment in low-carbon R&amp;D</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Technology area</th>
<th>Stage of development in the reporting year</th>
<th>Average % of total R&amp;D investment over the last 3 years</th>
<th>R&amp;D investment figure in the reporting year (optional)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please select</td>
<td>&lt;Not Applicable&gt;</td>
<td>Please select</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C10. Verification

C10.1

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

<table>
<thead>
<tr>
<th>Verification/assurance status</th>
<th>Verification/assurance status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1</td>
<td>Third-party verification or assurance process in place</td>
</tr>
<tr>
<td>Scope 2 (location-based or market-based)</td>
<td>Third-party verification or assurance process in place</td>
</tr>
<tr>
<td>Scope 3</td>
<td>No third-party verification or assurance</td>
</tr>
</tbody>
</table>

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_luren_2019_rev1.pdf
  - CDP_Statement_aurubis_bh_2019_rev1.pdf
  - CDP_Statement_aurubis_qg_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**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>85.7%</td>
<td>% of Scope 1 emissions covered by the ETS</td>
</tr>
<tr>
<td>85.7%</td>
<td>% of Scope 2 emissions covered by the ETS</td>
</tr>
</tbody>
</table>

**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) 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. Results: Additional 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) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

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

Yes

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

<table>
<thead>
<tr>
<th>Objective for implementing an internal carbon price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigate GHG regulations</td>
</tr>
<tr>
<td>Stakeholder expectations</td>
</tr>
<tr>
<td>Change internal behavior</td>
</tr>
<tr>
<td>Drive energy efficiency</td>
</tr>
<tr>
<td>Drive low-carbon investment</td>
</tr>
<tr>
<td>Stress test investments</td>
</tr>
<tr>
<td>Identify and seize low-carbon opportunities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GHG Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1</td>
</tr>
<tr>
<td>Scope 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actual price(s) used (Currency /metric ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variance of price(s) used</th>
</tr>
</thead>
<tbody>
<tr>
<td>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€.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of internal carbon price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implicit price</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact &amp; implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

(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) 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 transportation of raw materials which account for 10% of our total Scope 3 emissions can be reduced by this approach.

(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 Luftgüterpartner Hamburgs” for promoting low-emission mobility.
(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?

<table>
<thead>
<tr>
<th>Focus of legislation</th>
<th>Corporate position</th>
<th>Details of engagement</th>
<th>Proposed legislative solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap and trade</td>
<td>Support with minor exceptions</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Energy efficiency</td>
<td>Support with minor exceptions</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Other, please specify (Circular Economy)</td>
<td>Support</td>
<td>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.</td>
<td>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.</td>
</tr>
</tbody>
</table>

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) Do you publicly disclose a list of all research organizations that you fund?

No

(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

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).

<table>
<thead>
<tr>
<th>Publication</th>
<th>In mainstream reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Complete</td>
</tr>
<tr>
<td>Page/Section reference</td>
<td>Numbers on p. 47, further information p. 37,45,98.</td>
</tr>
<tr>
<td>Content elements</td>
<td>Strategy, Risks &amp; opportunities, Emissions figures, Other metrics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Publication</th>
<th>In voluntary sustainability report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Complete</td>
</tr>
<tr>
<td>Attach the document</td>
<td>aurubis_sustainabilityreport_2017_18.pdf</td>
</tr>
<tr>
<td>Page/Section reference</td>
<td>p.32</td>
</tr>
<tr>
<td>Content elements</td>
<td>Strategy, Emissions figures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Publication</th>
<th>In voluntary communications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Complete</td>
</tr>
<tr>
<td>Attach the document</td>
<td>2019_aurubis_ag_environmental_statement_en.pdf</td>
</tr>
<tr>
<td>Page/Section reference</td>
<td>p.25</td>
</tr>
<tr>
<td>Content elements</td>
<td>Emissions figures, Other metrics</td>
</tr>
</tbody>
</table>

C15. Signoff

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

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

<table>
<thead>
<tr>
<th>Row</th>
<th>Job title</th>
<th>Corresponding job category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CEO</td>
<td>Chief Executive Officer (CEO)</td>
</tr>
</tbody>
</table>
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?

<table>
<thead>
<tr>
<th>Annual Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>11897000000</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>ISIN country code (2 letters)</th>
<th>ISIN numeric identifier and single check digit (10 numbers overall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE</td>
<td>0006766504</td>
</tr>
</tbody>
</table>

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?

<table>
<thead>
<tr>
<th>Allocation challenges</th>
<th>Please explain what would help you overcome these challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity of product lines makes accurately accounting for each product/product line cost ineffective</td>
<td>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.</td>
</tr>
</tbody>
</table>

SC1.4

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

SC1.4a
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.
(SC4.2a) Complete the following table for the goods/services for which you want to provide data.

<table>
<thead>
<tr>
<th>Name of good/service</th>
<th>Description of good/service</th>
<th>Type of product</th>
<th>SKU (Stock Keeping Unit)</th>
<th>Total emissions in kg CO2e per unit</th>
<th>% change from previous figure supplied</th>
<th>Date of previous figure supplied</th>
<th>Explanation of change</th>
<th>Methods used to estimate lifecycle emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper Production</td>
<td>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.</td>
<td>Final</td>
<td>tons</td>
<td>210</td>
<td></td>
<td></td>
<td></td>
<td>Please select</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Name of good/service</th>
<th>Initiative ID</th>
<th>Description of initiative</th>
<th>Completed or planned</th>
<th>Emission reductions in kg CO2e per unit</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>I am submitting to</th>
<th>Public or Non-Public Submission</th>
<th>Are you ready to submit the additional Supply Chain Questions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investors</td>
<td>Public</td>
<td>Yes, submit Supply Chain Questions now</td>
</tr>
<tr>
<td>Customers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please confirm below

I have read and accept the applicable Terms