

C0. Introduction

C0.1

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

Aurubis AG is the world's leading provider of non-ferrous metals. The company processes complex metal concentrates, copper scrap and metal-bearing recycling materials into metals of the highest quality. Among other items, Aurubis produces more than 1 million t of copper cathodes per year, and from them diverse copper products, such as wire rod and shapes, rolled products, strip, and specialty wire and profiles made of copper and copper alloys. In addition, Aurubis is one of 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, tin, zinc 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 sites are in Germany, Belgium and Bulgaria. The Aurubis headquarter is in Hamburg, where key production facilities are also concentrated. 7,236 employees worked for the Aurubis Group worldwide as of September 30, 2020. Of this number, 53 % worked at the German plants and 47 % 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. The main focuses of our strategy are on expanding our market position as an integrated copper and metal producer, entering new markets by offering metals for industries of the future, utilizing growth opportunities and practicing a responsible attitude when dealing with people, resources and the environment. Aurubis AG was founded in Hamburg in 1866 under the name Norddeutsche Affinerie AG. Following various changes in the ownership structure, an IPO was carried out in 1998. The company was renamed Aurubis as a result of a resolution passed at the company's Annual General Meeting on February 26, 2009. Aurubis shares are part of the Prime Standard Segment of the Deutsche Börse and are listed in the MDAX and the Global Challenges Index (GCX).

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2020	December 31 2020	No	<Not Applicable>

C0.3

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

- Belgium
- Bulgaria
- Finland
- Germany
- Italy
- Netherlands
- Spain
- United States of America

C0.4

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

EUR

C0.5

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

Operational control

C-MM0.7

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

Row 1

Mining

Processing metals

Copper

Gold

Platinum group metals

Silver

Nickel

Zinc

Lead

Other non-ferrous metals, please specify (Selenium, Tellurium, Tin )

## C1. Governance

---

### C1.1

---

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

Yes

### C1.1a

---

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

Position of individual(s)	Please explain
Chief Executive Officer (CEO)	Energy and climate related targets are part of the sustainability strategy. The sustainability strategy is reviewed and has to be approved by the CEO. The CEO oversees major capital expenditures for energy investments, e.g. the € 3.5 million for the Power-to-steam-plant in Hamburg. There are several reports on energy and climate targets that require approval by the CEO, e.g. the CDP questionnaire.

### C1.1b

---

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	Executive Board: Reviewing and guiding of strategy and setting performance objectives: Energy and climate related targets are part of the sustainability strategy. The sustainability strategy is reviewed and has to be approved by the CEO. The sustainability strategy is part of the groups business strategy. Example: An example of how a governance mechanism selected contribute to the boards oversight is that the CEO oversees major capital expenditures for energy investments, e.g. the € 3.5 million for the Power-to-Steam plant in Hamburg. Monitoring of performance and overseeing progress: There are several reports on energy and climate targets that require approval by the CEO, e.g. commitment to the SBTi. The SBT were validated and approved by the SBTi in June 2021. Furthermore, climate related risks are monitored and reported quarterly to the board. Example 1: Once a year a strategic risk portfolio, covering risks focusing on the upcoming 10 years, is set up by the Risk Manager and experts from the relevant business areas and reported to the board (nearly half of the strategic risks are related to climate change). Example 2: Risk report section in annual report provides risk overview structured according to TCFD framework (e.g. physical and transitional risks) and providing management approach to mitigate these risks. Example 3: Weekly discussions are held (among other core activities) on exposure to climate related costs, with a discussion of mitigation actions. Example 4: It is planned that CO2 as a KPI will be divided into CO2 price and CO2 emissions to be included in mid-term plan (budget) broken down into CO2 emission budgets per site. These budgets will then be tracked via monthly and quarterly actuals vs budget comparisons. Plus, CO2 emissions will be made a decisive factor for approvals in all Capex projects on operating and strategic level. Supervisory Board: Risk Management and Sustainability report including climate risks regularly in the Audit committee meeting.

**C1.2**

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
President	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Environment/ Sustainability manager	<Not Applicable>	Assessing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Risk manager	<Not Applicable>	Other, please specify (Managing climate-related risks)	<Not Applicable>	Quarterly
Chief Executive Officer (CEO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly

**C1.2a**

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

Senior Vice President Corporate Energy & Climate Affairs and Energy Managers: Senior Vice President Corporate Energy & Climate Affairs and Energy Managers: The head of Corporate Energy & Climate Affairs develops and implements the Group-wide energy strategy and reports directly to the Executive Board chairman. The corporate department also coordinates the development of the energy management and monitoring system across the Group on behalf of the plants, providing for a uniform approach. Such composition ensures an appropriate overview for the CEO related to important and emerging climate topics and enables short decision paths. In weekly Jour Fixes status of measures are reported, for example progress in energy efficiency projects, by the team of six Energy Managers. Planned local investments with effects on energy consumption, energy efficiency and CO2 emissions are supported by the Head of Corporate Energy & Climate Affairs and his team. These projects are developed together with the plant managers and/or local energy officers.

Vice President Environmental Protection and Environment Managers: The Vice President of Corporate Environmental Protection is responsible for the strategic positioning of environmental protection in the Group. Corporate Environmental Protection reports directly to the COO. Such composition ensures that the COO has appropriate overview of relevant standards and can ensure adherence to legal environmental requirements. Standards are implemented by the plant managers at the sites supported by the head of Corporate Environmental Protection. Corporate Environmental Protection assists the sites' environmental officers if requested adherence to the legal environmental requirements, regulatory provisions, standards and business demands. Environment Managers request environmental KPI (including carbon emissions and energy consumption) on a yearly basis from all plants for reporting and monitoring. Important current issues and developments are reported more frequently to the Executive Board.

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

**Executive Director Corporate Risk Management:** The Executive Director Corporate Risk Management is responsible for the corporate risk management, which includes maintaining a Corporate Risk Management Policy and conducting risk reporting. The Executive Director Corporate Risk Management reports to the Senior Vice President Corporate Controlling & Risk Management. First, standard risk reporting, takes place bottom-up each quarter using a uniform, group-wide reporting format. Climate-related risks are recorded in this way in order to obtain a comprehensive picture of the risks and possible interdependencies and connections with other types of risk. Within this reporting format, the identified risks and especially risks beyond a defined threshold are explained and evaluated on the basis of their probability of occurrence and their business significance. Measures to manage them are then individually outlined. The risk section in annual report provides climate risks structured according to the TCFD Framework to provide to address the importance of this issue towards investors and shareholders. On top, once a year a strategic risk portfolio is set up focusing on risks over the next 10 years. Currently almost half of these risks are related to climate change. This portfolio together with initiated or proposed mitigating measures is presented to the Executive Board. As a means for early and overarching risk identification and corresponding countermeasures, Corporate Risk Management is engaged in regular Jour Fixes with Corporate Energy & Climate Affairs, Environmental Protection and Sustainability. All of this forms a consistent and uniform risk culture tackling climate-related risks.

**Plant Manager:**

The Plant Managers have the responsibility to ensure compliance with the company's environmental and energy guidelines. Some sites additionally have local energy managers who are entrusted with the safe supply of energy.

**C1.3**

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

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

**C1.3a**

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

Entitled to incentive	Type of incentive	Activity incentivized	Comment
President	Monetary reward	Efficiency project	
President	Monetary reward	Emissions reduction target	
Energy manager	Monetary reward	Efficiency target	
Environment/Sustainability manager	Monetary reward	Other (please specify) (Compliance with sustainability strategy)	
All employees	Monetary reward	Emissions reduction project Energy reduction target Efficiency project Behavior change related indicator Supply chain engagement	
President	Monetary reward	Other (please specify) (Compliance with sustainability strategy)	

C2. Risks and opportunities

---

C2.1

---

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

Yes

C2.1a

---

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

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

C2.1b

---

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

Definition of "substantive financial or strategic impact":

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

Description of the quantifiable indicator:

Aurubis categorizes a risk as "having a substantive financial or strategic impact" when it is clustered with a high probability of occurrence and will have a financial impact exceeding € 50 million.

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 Risk Management System (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 based on 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). For the risk report section in the annual report, climate-related risks are structured according to the Task Force on Climate-Related Financial Disclosures (TCFD) framework to provide transparency on this important aspect to shareholders, analysts and investors and to emphasize Aurubis' intention to actively tackle climate-related risks. On top of this, 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 (up to 10 years). All risks that are somehow connected to climate change are clearly indicated in this portfolio and currently these risks provide almost half of the disclosed risks. This strategic risk portfolio is also presented to Executive Board and Audit Committee once a year. Regarding governance, a Corporate Risk Management Policy is in place and is regularly maintained. Besides organisation and risk management setup it defines processes for identifying, assessing, communicating, steering and monitoring risks, including climate-related risks. Corporate Energy & Climate Affairs and Corporate Environmental Protection have their own Corporate policies in place to support risk management duties they have in their areas of responsibilities.

Case Study physical risk: Situation: Aurubis headquarters and its biggest plant is in the Hamburg port area which is vulnerable to the influence of tides of the North Sea via the river Elbe. Thus, the Hamburg port area is also vulnerable to storm surges caused by major storms in the North Sea area. Climate change models predict these storms can likely grow in intensity. Task: The Hamburg plant has to be protected against these storms and against the growing intensity and frequency and a warning system should be in place. Action: The dam and levee situation around the plant was checked. The whole port area of Hamburg as well as the cities along the river Elbe are protected against these floods by a system of well-maintained dams and levees and this also includes the Hamburg plant of Aurubis. The plant is also included in the Hamburg flood warning service Result: The Hamburg plant is protected against the storms within the dams and levees system of the Hamburg port area.

Case Study transitional opportunity: Situation: With the Green Deal, the EU has an ambitious target for 2050: a resilient economy and society that achieves carbon neutrality through high innovative strength and competitiveness. This corresponds to Aurubis' goal, as it is apparent in Aurubis' affirmation to the Science-Based Targets initiative. Task: Aurubis supports the goal of a carbon-neutral continent by 2050. As a multi-metal company, we can and want to contribute to this goal – through innovative products and production processes Action: Aurubis has a goal to become one of the most efficient and sustainable smelter networks in the world. At all of the relevant production sites, we have been successfully implementing CO2 reduction projects through different energy efficiency measures for several years. Result: Aurubis is testing new processes to enable the use of hydrogen in production, pushing forward with the use of industrial waste heat, and investing in renewable energies. In addition to CO2 reduction from Industrial Heat project, Aurubis has been implementing further CO2 reduction projects at different sites, such as power-to-steam plant in Hamburg, Photovoltaics (PV) facility in Pirdop and launching the series of hydrogen tests at its Hamburg plant. From PV facility, power-to-steam plant and use of hydrogen in the HH smelter production, Aurubis is expecting to save up to 14,200 t CO2 emissions annually.

**C2.2a**

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes regulation risks into the risk assessment process. Aurubis actively takes part in the political dialogue to counter the challenges that regularly arise from changes to regulatory requirements. Corporate Energy and Climate Affairs and Corporate External Affairs monitor the regulatory situation and create regular updates in exchange with trade associations. Based on this is a quarterly risk assessment done to quantify the impacts and estimate the likelihood. Example: One example are financial burdens resulting from changes in potential cost drivers such as the EU Emission Trading Scheme (ETS). Aurubis is covered by the EU ETS for six installations throughout the EU, with total direct emissions amount of ~ 470,000 t CO2 in 2020. Other Burdens resulting from changes in potential cost drivers such as the German Renewable Energy Act (EEG), the emissions trade, grid charges and the eco-tax are quantified in the climate-related risk assessments in order to the possible loss of exemptions due to not qualifying or drastic changes in regulation. However we have climate-related risk assessments that analyse the maximal magnitude of risks, if total exemption cases are lost. Inclusion in risk assessment: Aurubis assesses and values the risk quarterly and actively takes part in the political dialogue to counter the challenges that regularly arise from changes to regulatory requirements. Corporate Energy and Climate Affairs and Corporate External Affairs monitor the regulatory situation and create regular updates in exchange with trade associations. Aurubis is covered by the EU ETS for six installations throughout the EU, with total direct emissions amount of ~ 470,000 t CO2 in 2020 Example: The fundamental retention of the special Carbon Leakage status for certain sectors starting in 2021 with regard to the allocation of free Emission Trading allowances and CO2 electricity price compensation stands out politically. The completion of the decision-making for the CO2 electricity price compensation is still pending. However, we expect to see a rise in CO2 costs due to increases in CO2 prices resulting from the supply shortage of available CO2 certificates in the coming trading period as well policy actions like the market stabilization reserve.
Emerging regulation	Relevant, always included	Inclusion in risk assessment: Aurubis assesses and values the risk quarterly and actively takes part in the political dialogue to counter the challenges that regularly arise from changes to regulatory requirements. Corporate Energy and Climate Affairs and Corporate External Affairs monitor the regulatory situation and create regular updates in exchange with trade associations. Aurubis is covered by the EU ETS for six installations throughout the EU, with total direct emissions amount of ~ 440,000 t CO2e in 2019. Example: The fundamental retention of the special Carbon Leakage status for certain sectors starting in 2021 with regard to the allocation of free Emission Trading allowances and CO2 electricity price compensation stands out politically. The completion of the decision-making for the CO2 electricity price compensation is still pending. However, we expect to see a rise in CO2 costs due to increases in CO2 prices resulting from the supply shortage of available CO2 certificates in the coming trading period as well policy actions like the market stabilization reserve.
Technology	Relevant, sometimes included	Inclusion in risk assessment: Aurubis assesses and values the risk quarterly and actively takes part in the political dialogue to counter the challenges that regularly arise from changes to regulatory requirements. Corporate Energy and Climate Affairs and Corporate External Affairs monitor the regulatory situation and create regular updates in exchange with trade associations. Aurubis is covered by the EU ETS for six installations throughout the EU, with total direct emissions amount of ~ 440,000 t CO2 in 2019. Example: The fundamental retention of the special Carbon Leakage status for certain sectors starting in 2021 with regard to the allocation of free Emission Trading allowances and CO2 electricity price compensation stands out politically. The completion of the decision-making for the CO2 electricity price compensation is still pending. However, we expect to see a rise in CO2 costs due to increases in CO2 prices resulting from the supply shortage of available CO2 certificates in the coming trading period as well policy actions like the market stabilization reserve.
Legal	Relevant, always included	Inclusion in risk assessment: Aurubis assesses and values the risk quarterly. Following the increased CO2 reduction targets set by EU commission and German climate change law which sharply increases the demand for electricity, while the supply is lowered by the coal-phase-out regulation and the slow speed of needed electricity grid expansion the risk for electricity supplies is increasing. Aurubis is closely monitoring this development and carefully selects appropriate countermeasures to safeguard continuous operations. Due to rising burdens by CO2, Aurubis evaluates alternative low or zero carbon technologies as alternatives in line with its commitment to Science Based Targets related to 1.5-degree objective of the Paris Agreement. The overall goal here is to reduce Scope 1 and 2 CO2 emissions by at least 50% each by 2030 compared to emission levels of 2018. Example: Aurubis already started initiatives for decarbonization (e.g. industrial heat utilization, power to steam, pilot program on using H2 instead of gas in one of our anode furnaces or the installation of a solar park in Pirdop) that normally do not fulfil the financial requirements for project approval of Aurubis. But due to the assessment of future demands in a low carbon future, decisions are made to approve these projects, by considering these climate related risks (higher CO2 costs, fluctuating electricity supply by renewables). However, it has to be stated that Aurubis currently cannot offset its own CO2 emissions against the amount of CO2 reduction resulting from projects like "Industrial heat".
Market	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes market risks into the risk assessment process. The focus on CO2 emissions in world-wide supply chains is growing (Scope 3). Thus, for Aurubis' customers it is important to keep their CO2 emissions in copper products, that they purchase (carbon footprint), as low as possible. There is a risk that these customers turn to other suppliers in order to reduce their carbon footprint if e.g. a competitor would be able to offer carbon-free copper. Counteracting this risk is one of the reasons why Aurubis works on energy efficiency and decarbonisation goals. Example: 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 another step of counter measures we do the annual climate reporting and the evaluation of this reporting by means of the CDP.
Reputation	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes reputation risks into the risk assessment process. The growing interest and increasing requirements from the surrounding environment validate our actions, as Aurubis is an energy intensive company emitting ~ 1.58 million t CO2 (direct and indirect) in 2020. Our responsible departments monitor the expectations of different stakeholders closely and engage in dialogues. Our external affairs, sustainability, communication, commercial and environmental departments monitor the reputation especially in the local surrounding of the plants and reports the risk assessment to the risk management. Example: We work for a good relation to the local authorities. Therefore, we work together with the local authorities in initiatives (like Hamburger Klimabündnis) and monitor emissions more than legally required. Aurubis has also pledged to implement the Science Based Targets related to 1.5 degree objective of the Paris Agreement in a declaration of intent. Following this declaration Aurubis aims to reduce Scope 1 and 2 emissions by ~ 50 % by 2030 compared to 2018 emissions. Additionally, we engage in projects like low carbon industrial heat for municipal heat supply. For example, meanwhile our customers are attaching more value to topics such as environmentally sound products, climate protection, modern production processes and a responsible and reliable supply of raw materials. In addition to investors, our customers are also paying heightened attention to whether Aurubis participates in climate reportings, such as the CDP and the Sustainability Report according to the GRI Standards.
Acute physical	Relevant, always included	Inclusion in risk assessment: Aurubis headquarter and its biggest plant is located in the Hamburg port area which is vulnerable to the influence of tides of the North Sea via the river Elbe. Thus, the Hamburg port area is also vulnerable to storm surges caused by major storms in the North Sea area. Climate change models predict these storms can likely grow in intensity. The whole port area of Hamburg as well as the cities along the river Elbe are protected against these floods by a system of well-maintained dams and levees and this also includes the Hamburg plant of Aurubis. With the recent flooding of plant Stolberg in mind we have just started to elaborate possible flood risks of all our sites (other than the mentioned ones Hamburg and Stolberg)
Chronic physical	Relevant, always included	Inclusion in risk assessment: Aurubis systematically includes chronic physical risks into the risk assessment process. As we purchase concentrates from all over the world, climate change related impacts on transportation routes (rise of sea level, extreme weather conditions, etc.) can be one of several risks for securing our raw materials supply. We deal with logistics risks by implementing a thorough, multi-step acceptance process for service providers, by avoiding single sourcing as far as possible, and by preventively developing back-up solutions. We have an international network of qualified service providers at our disposal and, for instance, prevent weather-related risks in the transport chain by minimizing contingency risks through contractual arrangements that provide for appropriate alternatives. Example: Water related risks are also substantial for mines and one of the reasons for negative impacts on production. Our diversified supplier base regarding different countries and region reduces this risk. Environmental impact is one of our criteria in our business partner screening to minimize sustainability risks in our supply chain.

**C2.3**

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

Yes

**C2.3a**

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

**Identifier**

Risk 1

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

Direct operations

**Risk type & Primary climate-related risk driver**

Current regulation	Carbon pricing mechanisms
--------------------	---------------------------

**Primary potential financial impact**

Increased direct costs

**Climate risk type mapped to traditional financial services industry risk classification**

&lt;Not Applicable&gt;

**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 88 % of total Scope 1 emissions. These local additional CO2 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 CO2 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**

Long-term

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

&lt;Not Applicable&gt;

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

23500000

**Potential financial impact figure – maximum (currency)**

47000000

**Explanation of financial impact figure**

The potential financial impact of critical developments due to changes in ETS legislation is as follows: 470,000 t CO2 x € 50/ t CO2 = € 23.5 million 470,000 t CO2 x € 100/ t CO2 = € 47 million In 2020 we reported direct emissions under the ETS regime of 470,000t CO2. At June 2021 price levels of ~ € 50/ t for a certificate this would account for up to € 23.5 million of additional annual costs if the ETS allocation reduction scheme would affect us or Carbon leakage status would be dropped for Copper industry. As we expect CO2 prices to further rise in the coming years, an increase to e.g. € 100 /t would be an additional annual cost burden of another € 23.5 million.

**Cost of response to risk**

116000000

**Description of response and explanation of cost calculation**

Situation: We are currently receiving free allocations of CO2 certificates to cover our direct CO2 emissions according to Copper being on the Carbon Leakage list. 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 new 4th trading period, which should raise prices considerably. Task: We have set Science Based Targets which were approved by the SBTi in June 2021. and are actively working on reducing our direct emissions through various projects. Action: The first projects on our decarbonization path have been initiated and have reached approval stage or beyond. These projects will be part of Aurubis complete decarbonization roadmap. Result: We are working on reducing our direct emissions through various projects to reduce our risk exposure to rising CO2 prices and reduction in ETS certificate allocations. However, most of the projects listed below are at a very early planning stage and therefore provided Capex figures should be interpreted as preliminary and are likely to change over the course of the projects to reduce our risk exposure to rising CO2 prices and reduction in ETS certificate allocations. However, most of the projects listed below are at a very early planning stage and therefore provided Capex figures should be interpreted as preliminary and are likely to change over the course of the projects. Pilot program on using H2 CO2 Reduction potential : 6,200 t CO2 CAPEX estimate: € 7 million Fuel-switch Pirdop (from heavy oil/ LPG to natural gas) CO2 Reduction potential: 4,700 t. CAPEX estimate: € 2.9 million Pirdop 10 MW solar power plant CO2 reduction potential: 15,000 t CO2 compared to a coal-fired power plant CAPEX estimate: € 5.8 million - Electrification of shaft furnaces for rod production. Reduction potential~ 70,000 t CO2 for the group. CAPEX estimate: € 100 million (4 furnaces á € 25 million) Cost calculation: € 7 million + € 2.9 million + € 5.8 million + € 100 million = € 116 million

**Comment****Identifier**

Risk 2

**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 (Decreased gross profit due to reduced production capacity)

**Climate risk type mapped to traditional financial services industry risk classification**

&lt;Not Applicable&gt;



**Company-specific description**

Aurubis headquarters and its biggest plant is located in the Hamburg port area which is vulnerable to the influence of tides of the North Sea via the river Elbe. Thus, the Hamburg port area is also vulnerable to storm surges caused by major storms in the North Sea area. Climate change models predict these storms can likely grow in intensity. The whole port area of Hamburg as well as the cities along the river Elbe are protected against these floods by a system of well-maintained dams and levees and this also includes the Hamburg plant of Aurubis.

**Time horizon**

Short-term

**Likelihood**

Very unlikely

**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)**

5000000

**Potential financial impact figure – maximum (currency)**

110000000

**Explanation of financial impact figure**

Flooding of site Hamburg bears the risk to cause longer shutdowns and outages of major equipment and production facilities, plus the flood and corresponding mud can cause major disruptions in the plant infrastructure incl. stability of buildings. This has just been witnessed in one of our smaller plants in Stolberg where - due to torrential rain - water levels of 1.5 - 2 meters incl. mud swept through the plant leaving the whole site devastated. Adopting this lesson learned effect onto plant Hamburg the severity of such a flood event and the impacted facilities, major disruption can last for 3 months or even longer for some facilities. We would estimate the risk for a three-month production downtime of Hamburg site to be in the range of € 90 million as one day of full production loss grosses up to ~ € 1 million of margin losses and repair, clean-up and remediation costs are minimum € 20 million. Major Capex volumes for collapsed buildings are not included in this estimate. It has to be stated here that this is the gross risk which is minimized to a low net risk by the existence of dams and levees as also described below. These dams and levees are high enough to withstand current projected storm surge levels. Calculation of financial figure: 90 days production standstill x margin loss of one lost production day of € 1 million = € 90 million plus € 20 million clean-up, remediation, repair of machinery and infrastructure = € 110 million

**Cost of response to risk**

30000

**Description of response and explanation of cost calculation**

The costs for the "Polder" community gross up to approx. € 30,000 p.a.. The Polder community takes care of maintenance and repair of dam and levees which protect the Peute peninsula on which Hamburg plant is located. Further costs are the costs for the Hamburg plant firefighting department. However as the existence of the firefighting department is a legal prerequisite to run our operations, the costs related to flood response for this department cannot be directly allocated and separated. Capital expenditures for a possible increase of levees and dams to protect against higher future flood levels are not foreseen to be planned within this decade. Situation: Hamburg plant is situated in the Hamburg port area along River Elbe. The whole port area is subject to flooding risk caused by high tides and storm surges due to heavy storms over North Sea waters. Flooding of Hamburg plant would very likely cause longer production standstills comparable to events in other regions of the world as just evidenced by a catastrophic flood event in one of our own plants, in Stolberg, Germany. Task: The plant is protected against flooding by dams and levees which are high enough to sustain even the highest possible flood levels that current estimates provide. Action: The impacts of global warming on the rise of sea levels and intensity of storms are carefully monitored. To do so communication channels to port of Hamburg authorities (HPA) have been set up to initiate further flood protection investments like increases of dams and levees in good time if deemed appropriate. Seasonal flood alarm trainings and emergency plan testings to be prepared for the very unlikely event of flooding belong to core management activities are not separately recorded as e.g. the works fire department of plant Hamburg is involved with all of their staff and equipment. Capital Expenditures for a possible increase of levees to protect against higher flood levels are not planned at this stage. Result: No immediate investment response required but Aurubis needs to closely monitor possible impacts of global warming on the rise of sea levels and intensity of storms to initiate further flood protection investments in good time if deemed appropriate.

**Comment****Identifier**

Risk 3

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

Direct operations

**Risk type & Primary climate-related risk driver**

Technology	Other, please specify ((Decreased revenues due to lost production for which we receive smelting fees plus increased Capex and Opex costs for repair and maintenance but also replacement investments))
------------	--

**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**

Aurubis is an energy-intensive company. Copper smelting and refining requires a lot of primary and secondary energy being steadily available. The production processes at Aurubis require a stable supply of electricity which is even growing with the embarkment on our decarbonization path in alignment with our commitment to Science Based Targets initiative. At the same time the electricity supply in Germany is impacted by government-led coal phase out to support the Paris climate agreement and the German specific nuclear phase out which implies shutdown of the last nuclear power plants by 2022. These electricity supplies shall be replaced by mainly renewables. Parallel to this, many other industries – e.g. steel, aluminium, chemical, cement – have embarked on similar decarbonization paths most of which require additional volumes of electricity to replace fossil fuelled processes.

**Time horizon**

Short-term

**Likelihood**

Very unlikely

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

&lt;Not Applicable&gt;

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

4000000

**Potential financial impact figure – maximum (currency)**

26000000

**Explanation of financial impact figure**

Based on studies done within each plant which also considered the national and local grid situation around each plant we estimate the financial risk of a power blackout of 2–24 hours to be € 25 million for Hamburg with a “low” probability. The main components of our estimate are – depending on weather and outside temperatures – that such a blackout can cause liquid metals in our furnaces and sulfuric acid in cooling towers to freeze and thereby to trigger a shutdown of up to 4 weeks. One day of shutdown for these facilities would cost us ~ € 0.6 million (4 weeks = € 16 million). On top of that we estimate costs to repair the expected damages to be ~ € 6 million. Smaller impact in other parts of Hamburg plant, mainly electrical infrastructure amount to € 1 million. The same exercise was done for our Lünen plant. However, the same scenario only triggers a financial risk of € 3 million. A blackout lasting longer than 24 hours could cause higher costs as more damage would occur. However, we view the likelihood of a blackout of > 24 hours to be very unlikely. Cost of a 24h blackout in Hamburg: € 16 million + € 7 million damage repair Cost of a 24h blackout in Lünen: € 3 million

**Cost of response to risk**

6000000

**Description of response and explanation of cost calculation**

Situation: Following the increased CO2 reduction targets set by EU commission and German climate change law which sharply increases the demand for renewable electricity and simultaneously lowers the stable supply of electricity through e.g. coal-phase out regulation combined with the approach to shutdown nuclear power plants and at the same time a slow speed of needed electricity grid expansion and storage for renewable energy the risk for secured electricity supplies is increasing. An unanticipated interruption of electricity supply could have a major impact on the operations as metals could freeze in the smelters and acid could freeze in cooling towers causing shutdowns of more than just a few days. Task: In 2020 Aurubis has started a plant-by-plant study for major operating sites to evaluate the local electricity supply situation and the already in place measures like emergency power generators or options of adapting operations to more flexibility. This also includes options to switch to other available electricity sources like nearby renewables to secure critical volumes. Action: Although we consider the likelihood to be “low”, the impact without countermeasures is estimated to be € 23 million for site Hamburg alone. For more insights into cost composition please see above. For Lünen we estimate the impact to be € 3 million. Impacts for other sites are investigated into. Thus, it is necessary to evaluate the electricity supply situation at our sites with view to this risk and to implement countermeasures in case of need. Result: While this plant-by-plant study is still ongoing and planned to be finished during fiscal year 2020/21, some gaps in our resilience against a possible blackout have already surfaced and will be further investigated into. Considering the outcome of the studies so far, we estimate investments for Hamburg to be approx. € 6 million. As we are still in an early planning stage this Capex figure is to be understood as a first estimate and can likely change over the course of coming months. The same accounts for the time horizon as second half 2022 is currently envisaged. For the site of Hamburg for example, we aim to reduce the financial impact in case of risk occurrence – through e.g. investments into emergency power generating units – to a level of € 1 to 2 million (after installation of above mentioned investment) and at the Lünen plant the decision for the time being is to accept the risk for the reasons given above.

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

Yes

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

Opp1

**Where in the value chain does the opportunity occur?**

Direct operations

**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**

With the Green Deal, the EU has an ambitious target for 2050: a resilient economy and society that achieves carbon neutrality through high innovative strength and competitiveness. This corresponds to Aurubis' goal, as is apparent in Aurubis' affirmation to the Science-Based Targets initiative and the corresponding company targets in line with the 1.5°C goal of the Paris Climate Agreement, 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. In 2020 preparations were made to connect another 160 apartments in the Rothenburgsort district to the heat supply from in early 2021 on. For this purpose, Aurubis extracts heat that is formed when sulphur dioxide – a by-product of copper smelting – is converted to sulfuric acid. Each year, up to 160 million kWh of heat can be

extracted from the process, equivalent to a more than 20,000 t reduction in CO<sub>2</sub>. 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 due to the transmission of heat to the HafenCity East neighbourhood, where conventional fuels would otherwise generate district heating. The first stage of the industrial heat project was honoured with several awards, e.g. dena Energy Efficiency Award, German Renewables Award 2018 etc. Aurubis is currently negotiating the expansion of this project to increase the CO<sub>2</sub> reduction potential.

**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)**

500000

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

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

10,000 t CO<sub>2</sub> x € 50/ t CO<sub>2</sub> = € 500,000/ year Replacing fossil fuels via residual heat utilization constitutes an economic counter value. One part of the recovered waste heat is used in the "HafenCity East" in Hamburg. The other part is used to substitute the use of natural gas for heat production at our site. By saving natural gas we save up to 10,000 t CO<sub>2</sub> at our plant per year. The current CO<sub>2</sub> price is € 50/ t. Total savings amount up to € 500,000/ year. In addition, it is a reduction of operational costs

**Cost to realize opportunity**

20000000

**Strategy to realize opportunity and explanation of cost calculation**

Replacing fossil fuels via residual heat utilization constitutes an economic counter value. One part of the recovered waste heat is used in the HafenCity East neighbourhood in Hamburg. The other part is used to substitute the use of natural gas for heat production at our site. Situation: With the Green Deal, the EU has an ambitious target for 2050: a resilient economy and society that achieves carbon neutrality through high innovative strength and competitiveness. At the Aurubis plant in Hamburg we show how industry can be a valuable partner in combating climate change. As an industrial plant located near the city centre of Hamburg, we wanted to make our industrial excess heat usable for the households in Hamburg. Task: 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. Action: 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. In 2020 preparations were made to connect another 160 apartments in the Rothenburgsort district to the heat supply from in early 2021 on. 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) Result: This award-winning project saves around 20,000 t of CO<sub>2</sub> 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, the cooling water volume discharged into the Elbe River decreased by about 10 million m<sup>3</sup>/ year as a result of the Industrial Heat project. Aurubis is negotiating the expansion of this project to increase the CO<sub>2</sub> reduction potential.

**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**

Other, please specify (Revenue increase)

**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 hand, metal recycling plays an important role as raw material source. It also helps to save energy, because the considerable amount of energy required for ore mining, processing and transport to metal smelters isn't necessary. 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. With our multi-metal recycling, we actively take part in the modern circular economy, promote the efficient and environmentally friendly use of valuable resources, and contribute to raw material security. 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 recycling capacity for secondary material. Part of this input is coming from our closing-the-loop activities, where we build up partnerships through which we not only sell our products, but also take back recycling raw materials customers accumulate. The raw material cycle comes full cycle. Aurubis AG fabricates about 1.03 million t of copper cathodes with a purity level of 99.99% per year. Thanks to Aurubis' distinct expertise in recycling, 42% of these cathodes come from reprocessed copper containing recycling materials. In addition to copper cathodes, Aurubis offers its customers processed copper in form of preliminary products such as wire rod, shapes, pre-rolled strip, specialty wire and alloys.

**Time horizon**

Short-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

37000000

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

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

More than 433 thousand t or 42% of Aurubis Group cathode output come from reprocessed copper containing scrap. Taking into account Aurubis copper premium of USD 96/ t in calendar year 2020, we are speaking here about more than € 37.096 million revenue impact. Moreover, additional financial impact results from scrap refining charges 433,020 t Copper Cathodes x USD 96/ t Copper (Aurubis Copper Premium) = USD 41.57 million USD 41.57 million USD (at € 0.89/ USD, average exchange rate 01.10.2019 – 30.09.2020) = € 37 million

**Cost to realize opportunity**

380000000

**Strategy to realize opportunity and explanation of cost calculation**

In the discussion about climate change the aspect of resource efficiency is more important than ever. The responsible handling of natural resources is not only vital in economic but also in environmental matters. Situation: 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. It also helps to save energy, because the considerable amount of energy required for ore mining, processing and transport to metal smelters isn't necessary. 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: With its multi-metal recycling, Aurubis actively takes part in the modern circular economy, promotes the efficient and environmentally friendly use of valuable resources, and contributes to raw material security. Result: Aurubis plays a vital role in the recycling chain: thanks to our integrated smelter network, we are able to process a broad range of materials, from industrial waste that accumulates directly from our production or our customers, to complex materials from end-of-life products. From these materials, we produce metals that can be directly used in new products. Aurubis processes recycling materials at different sites. Our sites in Lünen (Germany), Olen and Beerse (both in Belgium), and Berango (Spain) specialize in processing recycling materials. Recycling materials are nearly the only feedstock at our largest recycling plant, the Aurubis recycling centre in Lünen. 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.

**Comment****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**

Sustainability is a fundamental part of the Aurubis Corporate strategy. We integrate sustainable conduct and business activities into the corporate culture. We joined the United Nations Global Compact (UNGC) initiative Business Ambition for 1.5 °C, which requires the Group to set science-based emissions reduction targets which were approved by the SBTi in June 2021. In addition to 20,000 t CO2 reduction from Aurubis' Industrial Heat project, Aurubis implemented further CO2 reduction projects at different sites: E.g. a power-to-steam facility (electrode boiler) was installed at the Aurubis Hamburg plant in 2019. During periods of surplus renewable energy in the grid, the facility converts the energy into steam for internal processes and contributes to integrated energy. For the Hamburg plant, over 10% of the installed electricity consumption capacity can be flexibly controlled already as a result. Assuming that 100% of the power supply comes from renewable energies, this plant could cut about 4,000 t of CO2 annually. Aurubis Bulgaria is planning to install 10 MW photovoltaic (PV) park at Pirdop site. The PV facility for generating electricity internally is the largest of its kind in Bulgaria according to current plans, and Aurubis Bulgaria would be the first industrial consumer in the country to invest in renewable energy production on this scale. The plan is to install the 22,200 PV panels on a remediated landfill site. The PV park will cover an average of about 2.5 % of the primary smelter's energy needs and is part of the site's energy transition plan. Compared to coal-fired power generation, this will save 15,000 t of CO2 emissions per year. Use of hydrogen (H2) holds further potential of decarbonizing Aurubis production sites. Natural gas is used to refine copper, drawing out excess oxygen bound in the copper. However, CO2 arises in addition to steam. Replacing the natural gas with H2 as a reducing agent would eliminate this CO2, leaving only the steam. In May 2021 Aurubis started a series of tests for H2 use on an industrial scale in copper anode production at the Hamburg plant. The pilot project in which hydrogen and nitrogen were introduced in the anode furnace instead of natural gas went according to plan. In the medium term, H2 could replace fossil fuels in the production process, making production more climate-friendly overall. By using H2, the potential CO2 savings for the Hamburg smelter could amount to 6,200 t CO2 annually.

**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)**

1260000

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

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

Future CO2 annual reduction potential from power-to-steam facility in Hamburg, PV plant in Pirdop and use of hydrogen in the Hamburg smelter sums up to 25,200 t CO2. The current CO2 price is € 50/ t. Total savings amount up to € 1,260,000/ year (€ 50/ t CO2 \* 25,200 t CO2).

**Cost to realize opportunity**

3500000

**Strategy to realize opportunity and explanation of cost calculation**

Situation: With the Green Deal, the EU has an ambitious target for 2050: a resilient economy and society that achieves carbon neutrality through high innovative strength and competitiveness. This corresponds to Aurubis' goal, as is apparent in Aurubis' affirmation to the Science-Based Targets initiative. Task: Aurubis supports the goal of a carbon-neutral continent by 2050. As a multimetal company, we can and want to contribute to this goal – through innovative products and production processes. Action: Aurubis has a goal to become one of the most efficient and sustainable smelter networks in the world. At all the relevant production sites, we have been successfully implementing CO2 reduction projects through different energy efficiency measures for several years. As an example, Aurubis invested ca. € 3.5 million for its power-to-steam plant. The Federal Ministry for Economic Affairs and Energy provided 10 % of the funds used to construct the power-to-steam plant as part of NEW 4.0. Result: Aurubis is testing new processes to enable the use of hydrogen in production, pushing forward with the use of industrial waste heat, and investing in renewable energies. In addition to CO2 reduction from Industrial Heat project, Aurubis has been implementing further CO2 reduction projects at different sites, such as power-to-steam plant in Hamburg, PV facility in Pirdop and launching the series of hydrogen tests at its Hamburg plant. From PV facility, power-to-steam plant and use of hydrogen in the HH smelter production, Aurubis is expecting to save up to 25,200 t CO2 emissions annually.

**Comment**

---

**C3. Business Strategy**

---

**C3.1**

---

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

Yes

**C3.1b**

---

**(C3.1b) Does your organization intend to publish a low-carbon transition plan in the next two years?**

	Intention to publish a low-carbon transition plan	Intention to include the transition plan as a scheduled resolution item at Annual General Meetings (AGMs)	Comment
Row 1	Yes, in the next two years	Yes, we intend to include it as a scheduled AGM resolution item	

**C3.2**

---

**(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?**

Yes, quantitative

**C3.2a**

---

**(C3.2a) Provide details of your organization's use of climate-related scenario analysis.**

Climate-related scenarios and models applied	Details
IEA 450	<p>Selection of the scenario: Aurubis participated actively in the development of the BDI 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 target set by the Paris Agreement. Which is why the IEA 450 scenario and its price projections were used for further analysis. Aim of the analysis was to investigate industrial processes and the industrial energy consumption regarding the challenges of a 2° scenario. Therefore, we gave input about our operations and productions and possible ways to decarbonize these. Time horizons considered/areas of organization considered: The IEA 450 scenario models a 2°C future until 2050. The inherent energy transformation from fossil to renewable, the vitally needed significant energy efficiency enhancements and revolution in industrial processes will have an impact on our production facilities and our business model in the next 30 years. Results summary: The Study results were reviewed in Corporate Energy &amp; Climate Affairs and were also used as input during the development of the Sustainability Strategy 2018-2023 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/ t CO2 in 2050. Energy &amp; Climate Affairs adopted this price into its scenario analysis. For 2030 we expect the target carbon € 95/ t CO2. With these assumptions we projected the inherent cost burden for Aurubis. Case study Situation: The inherent energy transformation from fossil to renewable, the vitally needed significant energy efficiency enhancements and revolution in industrial processes will have an impact on our production and our business model. Task: Two main action approaches were derived from this: Primarily, Aurubis' carbon emissions must be reduced. Additionally, Aurubis' engagement with policy makers has to point out the necessity to provide Carbon Leakage protection for sectors that compete internationally. Action: An example how the business strategy has been directly influenced by the scenario analysis is the carbon reduction target set in our sustainability strategy that is part of our business strategy. We are also using scenario analysis to assess future development of the EV sector, because it has direct impact on such commodity segments as metals and mining. Another field, where we are using scenario analysis is around the growth of the recycling sector. Result: As a part of 2018-2023 Sustainability Strategy, Aurubis aims to reduce our CO2 by &gt; 100,000 t by financial year (FY) 2022/23 (base FY: 2012/13). The carbon reduction targets were approved by the CEO. The target and inherent measures are monitored and reviewed in close coordination among the relevant departments and the Executive Board. Looking ahead, in 2021 the current CO2 reduction target will be transferred into Science-based targets in 2021. Aurubis thereby declared to reduce 50% of its Scope 1+2 emissions and 24% of its Scope 3 emissions, contributing to the 1.5 °C goal of the Paris Climate Agreement.</p>

**C3.3**

**(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.**

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>How strategy has been influenced: Aurubis is one of the leading recycling companies for complex recycling materials. With the Metallo acquisition, Aurubis is expanding its technological processing expertise and the related capabilities in order to remain competitive in the long term. Time horizon covered: long-term Case study of the most substantial strategic decision(s) made: Situation: Aurubis is one of the world leading recycling companies in copper, precious metals, and other non-ferrous metals in an efficient, environmentally sound manner. 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: Aurubis plays a vital role in the recycling chain: thanks to our integrated smelter network, we can process a broad range of materials – from industrial waste that accumulates directly from our production or our customers' operations to complex materials from end-of-life products. Action: 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 t of recycling capacity for secondary material. The global recycling volume will continue to rise, and we see good growth opportunities for our business model here. Result: Aurubis AG fabricates about 1.03 million t of copper cathodes with a purity level of 99.99 % per year. Thanks to Aurubis' distinct expertise in recycling, 42 % of these cathodes come from reprocessed copper containing recycling materials.</p>
Supply chain and/or value chain	Yes	<p>How strategy has been influenced: Thanks to our multi-metal recycling activities and proximity to our copper product customers, we consider ourselves to be able to offer expanded closing-the-loop solutions. In line with Sustainability Strategy 2018-2023 Aurubis is establishing and developing "closing-the-loop" systems as a result of new or intensified cooperation with original equipment manufacturers (OEMs), retailers, or copper product customers. Time horizons covered: long term Case study of the most substantial strategic decision(s) made: Situation: In the discussion about climate change the aspect of resource efficiency is more important than ever. The responsible handling of natural resources is not only vital in economic but also in environmental matters. It is important that products are recycled over and over again at the end of their lifecycles. This ensures that valuable raw materials are used, resources are conserved, and environmental impacts are prevented. Task: Ensuring 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: Over the past several years, we have established over 50 "closing-the-loop" arrangements in which our customers also became suppliers of secondary materials. The material volume from these closed loops was approximately 50,000 t in financial year 2019/20.</p>
Investment in R&D	Yes	<p>How strategy has been influenced: Due to the fact, that environmental protection is a top priority for Aurubis, we are continuously developing our processes and methods to reduce emissions of all kinds. Furthermore, the impact of each strategic CAPEX project is assessed along a set of key sustainability KPIs at very early stage of the project development process. Thereby, Aurubis ensures that its pipeline of strategic projects is in full alignment with Aurubis' sustainability ambition. Time horizons covered: long-term. Case study of the most substantial strategic decision(s) made Situation/ Task: Environmental protection is a top priority for Aurubis. As a result, we are continuously developing our processes and methods to reduce emissions of all kinds. Action: In the financial year 2019/2020 the Aurubis Group's R&amp;D expenditures amounted to € 15 million. During the reporting period, R&amp;D work primarily focused on optimizing production processes for copper, lead, and precious metals, as well as on improving environmental compatibility. At the same time, the department investigated new technologies, and developed products and applications for our metals. Result: Aurubis carried out an extensive analysis of the technical possibilities for minimizing Aurubis' CO2 footprint. R&amp;D supported this analysis with technical expertise and preliminary trials. R&amp;D is concentrating on further investigating possible metallurgical applications of hydrogen to be able to shift to hydrogen in the future, on the conditions of cost-efficiency and clear political parameters. Another R&amp;D focus in the fiscal year 2019/2020 was the development of a technology to enable the processing of larger quantities of lithium-ion batteries in the Aurubis Group in the future. The R&amp;D department is working on a hydrometallurgical process to increase the recycling rates of the non-ferrous metal contents such as copper, nickel, and cobalt, as well as to open access to manganese and lithium. The goal is to implement these processes on an industrial scale to be able to return the valuable recovered metals to battery manufacturers.</p>
Operations	Yes	<p>How strategy has been influenced: Climate change makes it even more important to balance economic interests, ecology and social aspects. In financial year 2019/20, we affirmed the Science-Based Targets initiative and committed to setting a science-based climate target to reduce our CO2 emissions until 2030. In this context, the Sustainability Strategy target will be adjusted in the coming years. Time horizons covered: long-term. Case study of the most substantial strategic decision(s) made Situation: With our multimetal strategy, we have set the target of growing in the processing of complex raw materials. For this purpose, we utilize our expertise in smelting, refining, metal recovery, recycling, and copper processing to generate the highest added value, along our entire value chains, from the various raw materials. Some innovations help to secure our economic success and competitiveness for the future, while at the same time contributing to reducing our environmental impacts in many cases. Task: As a result, we have to continuously develop our processes and methods to further reduce emissions. Identified CO2 reduction potentials have to be realized and new technologies have to be evaluated to further decrease our CO2 emissions. Action: Aurubis is testing new processes to enable the use of hydrogen in production, pushing forward with the use of industrial waste heat, and investing in renewable energies. Result: We aim to reduce our CO2 by &gt; 100,000 t by financial year (FY) 2022/23 (base FY: 2012/13). As published in our Sustainability Report 2019/2020, a total of 87.9 % of the target has been achieved, or 89.3 % when including reductions made outside of the plant (particularly using our industrial heat as district heating in the Hamburg HafenCity East district). With these measures it was possible to achieve a carbon footprint that is more than 50 % below the global average of the copper producing industry.</p>

**C3.4**

**(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Access to capital	<p>Revenues: Situation: Aurubis is a world leader in recycling copper, precious metals, and other non-ferrous metals in an efficient, environmentally sound manner. Task: 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. Action: With our multi-metal recycling, we actively take part in the modern circular economy, promote the efficient and environmentally friendly use of valuable resources, and contribute to raw material security. Result: More than 433 thousand t or 42 % of Aurubis Group cathode output come from reprocessed copper containing scrap. Taking into account Aurubis copper premium of USD 96/ t in calendar year 2020 , we are speaking here about more than € 37 million Euro revenue impact. Moreover additional financial impact results from scrap refining charges. Direct Costs: Situation: With the Green Deal, the EU has an ambitious target for 2050: a resilient economy and society that achieves carbon neutrality through high innovative strength and competitiveness. This corresponds to Aurubis' goal, as is apparent in Aurubis' affirmation to the Science-Based Targets initiative. Task: Aurubis supports the goal of a carbon-neutral continent by 2050. As a multimetallurgical company, we can and want to contribute to this goal – through innovative products and production processes Action: Aurubis has a goal to become one of the most efficient and sustainable smelter networks in the world. At all of the relevant production sites, we have been successfully implementing CO2 reduction projects through different energy efficiency measures for several years. Result: Aurubis is testing new processes to enable the use of hydrogen in production, pushing forward with the use of industrial waste heat, and investing in renewable energies. In addition to 10,000 t CO2 reduction from Industrial Heat project at our plant, Aurubis has been implementing further CO2 reduction projects at different sites, such as power-to-steam plant in Hamburg, PV facility in Pirdop and launching the series of hydrogen tests at its Hamburg plant. From PV facility (15,000 t CO2), power-to-steam plant (4,000 t CO2) and use of hydrogen (6,200 t CO2) in the HH smelter production, Aurubis is expecting to save up to 25,200 t CO2 emissions annually. Future CO2 annual reduction potential from Industrial Heat project, power-to-steam facility in Hamburg, PV plant in Pirdop and use of hydrogen in the Hamburg smelter sums up to 35,200 t CO2 . The current CO2 price is 50 €/t. Total savings amount up to € 1,760,000/ a (€ 50/ t CO2 x 35,200 t CO2). Access to capital Aurubis' and enercity AG project delivers CO2-free waste heat for Hafencity East neighbourhood in Hamburg. This award-winning project saves around 20,000 t of carbon dioxide (CO2) emissions per year through the reuse of heat. The two participating companies invested over € 20 million each, of which 30 to 40 % was publicly funded. Aurubis received funding from the German Reconstruction Loan Corporation (KfW), while enercity AG received support from the European Regional Development Fund (ERDF) and the KfW. The funding was initiated by the German Federal Ministry for Economic Affairs and Energy (BMWi) and the Hamburg Authority for Environment and Energy (BUE).</p>

C3.4a

**(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).**

C4. Targets and performance

C4.1

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

Absolute target

C4.1a

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

**Target reference number**

Abs 1

**Year target was set**

2013

**Target coverage**

Company-wide

**Scope(s) (or Scope 3 category)**

Scope 1+2 (market-based)

**Base year**

2013

**Covered emissions in base year (metric tons CO2e)**

1900000

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

100

**Target year**

2022

**Targeted reduction from base year (%)**

8.6

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

1736600

**Covered emissions in reporting year (metric tons CO2e)**

1580647

**% of target achieved [auto-calculated]**

195.44247246022

**Target status in reporting year**

Underway

**Is this a science-based target?**

No, but we anticipate setting one in the next 2 years

**Target ambition**

<Not Applicable>

**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 t CO2 by 2022/2023 (updated in 2018 in line with the Vision 2025). The program is being implemented through concrete projects at individual sites.

**C4.2**

**(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

No other climate-related targets

**C4.3**

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

Yes

**C4.3a**

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

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	3	184200
To be implemented*		
Implementation commenced*		
Implemented*	158	89300
Not to be implemented		

**C4.3b**



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

**Initiative category & Initiative type**

Low-carbon energy generation	Other, please specify (Power-to-steam plant)
------------------------------	--

**Estimated annual CO2e savings (metric tonnes CO2e)**

15000

**Scope(s)**

Scope 2 (location-based)

**Voluntary/Mandatory**

Voluntary

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

200000

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

3500000

**Payback period**

16-20 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

Annual monetary savings calculated based on 4,000 t CO2 x € 50 /t CO2 = € 200,000

**C4.3c**

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

Method	Comment
Internal price on carbon	When investments in process optimization or new facilities reduce emissions, they are valued with Aa CO2 price forecast. The resulting savings is are taken into account for investment calculations and are therefore a driver for investment decisions. For example, 1,000 MWh savings of natural gas lead to € 25,000 savings (at a natural gas price of € 25/ MWh) and additionally to reductions of 200 tons CO2 emissions, what leads to another € 5,000 savings. Therefore, CO2 is with 17% a substantial driver of fuel savings.
Compliance with regulatory requirements/standards	Investments in emissions reductions are done in alignment with EU-ETS reduction targets (at the moment only binding target) to avoid the obligation for additional certificate purchase.
Internal incentives/recognition programs	New ideas could be submitted via a company suggestion system and in case of implementation they are honoured with a bonus depending on the savings. Furthermore, certain managers have individual bonus pay-outs depending on climate related targets that also consist emission reductions.

**C4.5**

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

Yes

**C4.5a**

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

**Level of aggregation**

Group of products

**Description of product/Group of products**

We produce our main product, copper, from copper concentrates and recycling materials. It is an ideal metal for reprocessing, as it isn't fully used up but can be returned to the cycle as often as desired without a loss of quality. Copper therefore fulfils 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. Besides copper, nickel and lead are also essential for the energy transition, for instance. Nickel is used in many CO2-free energy sources and in batteries of electric vehicles. Lead is used in wind energy photovoltaics and for geothermal energy (in cable sheathing).

**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**

66.2

**% of total portfolio value**

<Not Applicable>

**Asset classes/ product types**

<Not Applicable>

**Comment**

66.2 % of our revenues in fiscal year 19/20 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**

28

**% of total portfolio value**

<Not Applicable>

**Asset classes/ product types**

<Not Applicable>

**Comment**

Around 42% of the copper content in copper cathodes derived from recycled materials in FY 19/20. 20% of our total revenues are derived from copper cathodes.

---

**C5. Emissions methodology**

---

**C5.1**

---

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

**Scope 1**

**Base year start**

January 1 2012

**Base year end**

December 31 2012

**Base year emissions (metric tons CO2e)**

518789

**Comment**

**Scope 2 (location-based)**

**Base year start**

January 1 2012

**Base year end**

December 31 2012

**Base year emissions (metric tons CO2e)**

905666

**Comment**

Added as new information in this CDP reporting.

**Scope 2 (market-based)**

**Base year start**

January 1 2012

**Base year end**

December 31 2012

**Base year emissions (metric tons CO2e)**

1176993

**Comment**

**C5.2**

---

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

European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations  
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

**C6. Emissions data**

---

**C6.1**

---

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

**Reporting year**

**Gross global Scope 1 emissions (metric tons CO2e)**

539836

**Start date**

<Not Applicable>

**End date**

<Not Applicable>

**Comment**

**C6.2**

---

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

**Row 1**

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We are reporting a Scope 2, market-based figure

**Comment**

## C6.3

---

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

**Reporting year**

**Scope 2, location-based**

1021537

**Scope 2, market-based (if applicable)**

1023459

**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 are not included from all sites

**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 excluded

**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**

1748765

**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**

110137

**Emissions calculation methodology**

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

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

**Please explain**

---

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

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

206978

**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**

345615

**Emissions calculation methodology**

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

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

**Please explain**

**Waste generated in operations**

**Evaluation status**

Not relevant, calculated

**Metric tonnes CO2e**

7139

**Emissions calculation methodology**

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

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

**Please explain**

**Business travel**

**Evaluation status**

Not relevant, calculated

**Metric tonnes CO2e**

44

**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**

8487

**Emissions calculation methodology**

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

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

**Please explain**

**Upstream leased assets**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Please explain**

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

## Downstream transportation and distribution

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

114201

### Emissions calculation methodology

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

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

#### Please explain

## Processing of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

#### Please explain

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

## Use of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

#### Please explain

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

## End of life treatment of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

#### Please explain

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

## Downstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

#### Please explain

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

**Franchises**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Please explain**

There are no franchises to be accounted for.

**Investments**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Please explain**

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

**Other (upstream)**

**Evaluation status**

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Please explain**

**Other (downstream)**

**Evaluation status**

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Please explain**

C6.7

---

**(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?**

No

C6.10

---

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

**Intensity figure**

0.000118

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

1580647

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

12429000000

**Scope 2 figure used**

Market-based

**% change from previous year**

5

**Direction of change**

Increased

**Reason for change**

Due to the acquisition of Metallo, emissions increased. Also, energy consumption increased due to the processing of more complex materials and environmental protection measures. With CO2 reduction measures we were able to dampen the rise but couldn't fully balance the increasing emissions.

## C7. Emissions breakdowns

### C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

No

### C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
United States of America	32451
EU28	507386

### C7.3

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

By facility

### C7.3b



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

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Hamburg, Germany	164051	53.521576	10.03331
Pirdop, Bulgaria	47547	42.703374	24.177048
Lünen, Germany	159739	51.60646	7.50755
Olen, Belgium	37622	51.177305	4.879092
Stolberg, Germany	3416	50.759048	6.234986
Buffalo, USA	32451	42.948404	-78.892807
Zutphen, Netherlands	3896	52.157565	6.206821
Pori, Finland	7195	61.462226	21.861253
Avellino, Italy	9976	40.914388	14.790612
CABLO Metall-Recycling und Handel GmbH, Fehrbellin, Deutschland	34	52.79407	12.76509
E.R.N., Hamburg, Germany	27	53.526343	10.029339
Retorte, Hamburg, Germany	343	49.49038	11.24973
Peute Baustoffe, Hamburg, Germany	9	53.51133	10.05728
Deutsche Giessdraht, Emmerich, Germany	15627	51.82784	6.26501
Metallo, Beerse, Belgium	48256	51.31962	4.81783
Metallo, Berango, Spain	9647	43.36787	2.993

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

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

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	539836	<Not Applicable>	
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

**C7.5**

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
United States of America	71415	18113	20288	114967
EU28	950121	1005346	1688011	125768

**C7.6**

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

By facility

**C7.6b**

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

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Hamburg, Germany	372820	519731
Pirdop, Bulgaria	310279	193802
Lünen, Germany	82571	115108
Olen, Belgium	64091	58302
Stolberg, Germany	16678	20720
Buffalo, USA	71415	18113
Zutphen, Netherlands	17297	17074
Pori, Finland	4261	4151
Avellino, Italy	2921	3793
Cablo, Germany	4829	6732
E.R.N, Germany	77	107
Retorte, Germany	944	1316
Peute Baustoffe, Germany	172	239
Emmerich, Germany	6943	6132
Metallo, Beerse, Belgium	58140	58140
Metallo, Berango, Spain	8099	0

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

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

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	906.768	1040810	
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

**C7.9**

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

**C7.9a**

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

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	48305	Decreased	3	In 2020 more renewable energy was used.
Other emissions reduction activities	44.979	Decreased	3	
Divestment		<Not Applicable>		
Acquisitions	116044	Increased	8	Due to the acquisition of Metallo emissions increased by 116,044 tCo2.
Mergers		<Not Applicable>		
Change in output	28887	Decreased	2	Compared to 2019 overall production volume decreased.
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other	141895	Increased	10	Overall, energy consumption increased. Reasons: e.g. processing of complex materials, environmental protection, more use of electricity.

### 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 5% but less than or equal to 10%

### C8.2

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

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

### C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	1764	1714793	
Consumption of purchased or acquired electricity	<Not Applicable>	114967	1788089	
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>		49315	
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	29072	<Not Applicable>	
Total energy consumption	<Not Applicable>	145803	3582197	

C-MM8.2a

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

	Heating value	Total MWh
Consumption of fuel (excluding feedstocks)	HHV (higher heating value)	1716557
Consumption of purchased or acquired electricity	<Not Applicable>	1903056
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	49315
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	29072
Total energy consumption	<Not Applicable>	3715157

C8.2b

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

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

C8.2c

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

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

1206744

**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**

20882

**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 CO2e per GJ

**Emissions factor source**

National Emission factor of Diesel, 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/2013-2020/Emissionsbericht\\_Leitfaden\\_Anhang4.pdf?\\_\\_blob=publicationFile&v=5](https://www.dehst.de/SharedDocs/downloads/DE/stationaere_anlagen/2013-2020/Emissionsbericht_Leitfaden_Anhang4.pdf?__blob=publicationFile&v=5))

**Comment**

**Fuels (excluding feedstocks)**

Liquefied Petroleum Gas (LPG)

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

35852

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

**Emission factor**

64.7

**Unit**

kg CO2e per GJ

**Emissions factor source**

National Emission factor of Diesel, 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/2013-2020/Emissionsbericht\\_Leitfaden\\_Anhang4.pdf?\\_\\_blob=publicationFile&v=5](https://www.dehst.de/SharedDocs/downloads/DE/stationaere_anlagen/2013-2020/Emissionsbericht_Leitfaden_Anhang4.pdf?__blob=publicationFile&v=5))

**Comment**

---

**Fuels (excluding feedstocks)**

Diesel

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

54932

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**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 CO2e per GJ

**Emissions factor source**

National Emission factor of Diesel, 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/2013-2020/Emissionsbericht\\_Leitfaden\\_Anhang4.pdf?\\_\\_blob=publicationFile&v=5](https://www.dehst.de/SharedDocs/downloads/DE/stationaere_anlagen/2013-2020/Emissionsbericht_Leitfaden_Anhang4.pdf?__blob=publicationFile&v=5))

**Comment**

---

**Fuels (excluding feedstocks)**

Distillate Oil

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

4008

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**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 CO2e 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/2013-2020/Emissionsbericht\\_Leitfaden\\_Anhang4.pdf?\\_\\_blob=publicationFile&v=5](https://www.dehst.de/SharedDocs/downloads/DE/stationaere_anlagen/2013-2020/Emissionsbericht_Leitfaden_Anhang4.pdf?__blob=publicationFile&v=5))

**Comment**

---

**Fuels (excluding feedstocks)**

Residual Fuel Oil

---

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

272084

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat****MWh fuel consumed for self-generation of steam****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 CO2e per GJ

**Emissions factor source**

Individual National Emission factors of Residual Fuel oil. Source: [https://www.dehst.de/DE/service/archivsuche/archiv/SharedDocs/downloads/DE/Berichterstattung\\_2005-2007/EB2007\\_Stoffliste.pdf?\\_\\_blob=publicationFile&v=2](https://www.dehst.de/DE/service/archivsuche/archiv/SharedDocs/downloads/DE/Berichterstattung_2005-2007/EB2007_Stoffliste.pdf?__blob=publicationFile&v=2)

**Comment**

---

**Fuels (excluding feedstocks)**

Coking Coal

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

108995

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat****MWh fuel consumed for self-generation of steam****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**

Please select

**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. The number above states the highest value.

**Comment**

---

**Fuels (excluding feedstocks)**

Landfill Gas

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

1764

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat****MWh fuel consumed for self-generation of steam****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 CO2e per GJ

**Emissions factor source**  
Landfill gas is a biogenic fuel

**Comment**

---

**Fuels (excluding feedstocks)**  
Please select

**Heating value**  
Please select

**Total fuel MWh consumed by the organization**  
30905

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

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

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

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

**Emission factor**  
66.3

**Unit**  
kg CO2e per GJ

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

**Comment**

---

**Fuels (excluding feedstocks)**  
Butane

**Heating value**  
HHV (higher heating value)

**Total fuel MWh consumed by the organization**

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

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

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

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

**Emission factor**

**Unit**  
Please select

**Emissions factor source**

**Comment**

---

## C8.2d

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	17055	17055	17055	29072
Heat	0	0	0	0
Steam	287137	287137	217606	217606
Cooling	0	0	0	0

## C-MM8.2d

---

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

	Total gross generation (MWh) inside metals and mining sector boundary	Generation that is consumed (MWh) inside metals and mining sector boundary
Electricity	29072	29072
Heat	0	0
Steam	287137	287137
Cooling	0	0

C8.2e

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

**Sourcing method**

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

**Low-carbon technology type**

Hydropower

**Country/area of consumption of low-carbon electricity, heat, steam or cooling**

United States of America

**MWh consumed accounted for at a zero emission factor**

114967

**Comment**

**Sourcing method**

Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

**Low-carbon technology type**

Please select

**Country/area of consumption of low-carbon electricity, heat, steam or cooling**

Spain

**MWh consumed accounted for at a zero emission factor**

10801

**Comment**

C9. Additional metrics

C9.1

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

C-MM9.3b



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

**Output product**

Copper

**Capacity (metric tons)**

1523072

**Production (metric tons)**

1523072

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

1523

**Scope 1 emissions (metric tons CO2e)**

466863

**Scope 2 emissions (metric tons CO2e)**

945083

**Scope 2 emissions approach**

Market-based

**Pricing methodology for-copper equivalent figure**

Production represents copper cathode production from our smelter sites Scope 1 Emissions Copper output: Scope 1 emission, (Hamburg, Lünen, Olen, Pirdop, Beerse, Berango) = 466,863t CO2 Scope 2 Emissions Copper Output: Scope 2 (Hamburg, Lünen, Olen, Pirdop, Beerse, Berango) = 945083 t CO2

**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)**

529947

**Production (metric tons)**

529947

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

530

**Scope 1 emissions (metric tons CO2e)**

72561

**Scope 2 emissions (metric tons CO2e)**

70326

**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 (Emmerich), Avellino) = 72,561 t CO2 Scope 2 Emissions Output Copper Fabrication Sites: Scope 2 emissions (Pori, Zutphen, Stolberg, Buffalo, Deutsche Giessdraht (Emmerich), Avellino) = 70,326 t CO2

**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)**

654755

**Production (metric tons)**

654755

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

655

**Scope 1 emissions (metric tons CO2e)**

413

**Scope 2 emissions (metric tons CO2e)**

8393

**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) = 413 t CO2 Scope 2 Emissions Output "Production Sites Other Than Copper": Scope 2 emissions (Cablo, Retorte, E.R.N., Peute) = 8.393 t CO2

**Comment**

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

---

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

	Investment in low-carbon R&D	Comment
Row 1	Yes	Due to the fact, that environmental protection is a top priority for Aurubis, we are continuously developing our processes and methods to reduce emissions of all kinds. Environmental protection is a top priority for Aurubis. As a result, we are continuously developing our processes and methods to reduce emissions of all kinds. In the financial year 2019/2020 the Aurubis Group's R&D expenditures amounted to € 15 million. During the reporting period, R&D work primarily focused on optimizing production processes for copper, lead, and precious metals, as well as on improving environmental compatibility. At the same time, the department investigated new technologies, and developed products and applications for our metals. Aurubis carried out an extensive analysis of the technical possibilities for minimizing Aurubis' CO2 footprint. R&D supported this analysis with technical expertise and preliminary trials. R&D is concentrating on further investigating possible metallurgical applications of hydrogen to be able to shift to hydrogen in the future, on the conditions of cost-efficiency and clear political parameters. Another R&D focus in the fiscal year 2019/2020 was the development of a technology to enable the processing of larger quantities of lithium-ion batteries in the Aurubis Group in the future. The R&D department is working on a hydrometallurgical process to increase the recycling rates of the non-ferrous metal contents such as copper, nickel, and cobalt, as well as to open up access to manganese and lithium. The goal is to implement these processes on an industrial scale to be able to return the valuable recovered metals to battery manufacturers.

C-MM9.6a

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

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

C10. Verification

C10.1

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

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

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**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Third party verification/assurance underway

**Attach the statement**

Aur19\_20\_CDP Letter\_signed.pdf  
 AUR1920\_CDP\_Letter\_Assurance\_Report (002).pdf  
 aurubis\_annual-report\_fy\_19\_20\_.pdf

**Page/ section reference**

The attached letter (AUR1920\_CDP\_Letter\_Assurance\_Report (002)) is referencing the stated emission data from the annual report FY 2019/20 p. 58

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

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**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Third party verification/assurance underway

**Attach the statement**

Aur19\_20\_CDP Letter\_signed.pdf

AUR1920\_CDP\_Letter\_Assurance\_Report (002).pdf

aurubis\_annual-report\_fy\_19\_20\_.pdf

**Page/ section reference**

The attached letter (AUR1920\_CDP\_Letter\_Assurance\_Report (002)) is referencing the stated emission data from the annual report FY 2019/20 p. 58

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

---

## C10.1c

---

**(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

**Scope 3 category**

Scope 3 (upstream & downstream)

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Third party verification/ assurance underway

**Attach the statement**

Aur19\_20\_CDP Letter\_signed.pdf

AUR1920\_CDP\_Letter\_Assurance\_Report (002).pdf

aurubis\_annual-report\_fy\_19\_20\_.pdf

**Page/section reference**

The attached letter (AUR1920\_CDP\_Letter\_Assurance\_Report (002)) is referencing the stated emission data from the annual report FY 2019/20 p. 58 Comment: Limited assurance

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

---

## 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?**

No, we are waiting for more mature verification standards and/or processes

## C11. Carbon pricing

---

### C11.1

---

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

Yes

### C11.1a

---

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

EU ETS

**C11.1b**

---

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

**EU ETS**

**% of Scope 1 emissions covered by the ETS**

87.59

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1 2020

**Period end date**

December 31 2020

**Allowances allocated**

822057

**Allowances purchased**

0

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

491235

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

**C11.1d**

---

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

The EU ETS works on the 'cap and trade' principle. A cap is set on the total amount of certain greenhouse gases that can be emitted by the installations covered by the system. The cap is reduced over time so that total emissions fall.

**Strategy to comply with the ETS**

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 a 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.

Result: 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 CO<sub>2</sub>-component. Especially for us as an energy intensive industry these also make up a big share of costs as well, because only 50% of our indirect carbon costs are compensated. Therefore, it is of our own interest to further reduce emissions. The certificates that we get are needed to cover part of the additional electricity costs, which cannot be handed down the value chain.

**C11.2**

---

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

No

### C11.3

---

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

Yes

### C11.3a

---

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

**Objective for implementing an internal carbon price**

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

**GHG Scope**

Scope 1  
Scope 2

**Application**

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

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

50

**Variance of price(s) used**

For short term projections the current EEX price of carbon is used. For projections until 2030 we are using € 95 per t CO2.

**Type of internal carbon price**

Implicit price

**Impact & implication**

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

---

## C12. Engagement

---

### C12.1

---

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

Yes, our customers

Yes, other partners in the value chain

### C12.1b

---

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

**Type of engagement**

Collaboration & innovation

**Details of engagement**

Please select

**% of customers by number**

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

**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 the 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**

**(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 select our carriers according to established criteria. Although economic and timing aspects have priority, we favour the most environmentally friendly carrier whenever possible. Accordingly, we prefer waterways over rail – and road transport is the last resort of the freights and transports we oversee, about 50 % (by volume) take place by waterway, 25 % by rail, and 25 % by road. We try to improve transport between the individual plants as well. To limit this as much as possible, we continuously review how we can optimize cargo loads and return trips. Furthermore, we maintain a dialogue with our suppliers and customers to tap additional transport synergies. We use a forecasting system to optimize capacity utilization with the forwarders, thus preventing empty transport runs. One example of our transport optimizations is the Cu-Port project at our Olen site. The plant's convenient location on the Bocholt- Herentals Canal makes it ideal for water transportation. As part of a public-private partnership between Aurubis and De Vlaamse Waterweg, the operator of the canal system, the so-called Cu-Port was commissioned at the site in 2020: a new container crane, together with a new quay wall and a connection to the existing railway network. This project provides us with a long-term, cost-efficient solution for our material flow on site and a reduction in CO2 emissions. Transport that was previously performed by truck is now carried out by waterway. This prevents a total of about 20,000 truck deliveries per year and 237 t of CO2 emissions. Another example from the fiscal year is that, in addition to copper shapes, copper rod is now also increasingly being transported from Hamburg to long-standing customers by rail, which contributes to reducing CO2 emissions. One single wagonload can transport more copper rod than two trucks. At the headquarters in Hamburg, we support alternatives to conventional individual transport of our employees with free, lockable bike boxes at two nearby train/subway stations to improve the connection between the plant premises and local public transport. During the reporting year, two StadtRAD (a bike rental/sharing system) stations started up near the plant premises with the same goal. Additional projects for sustainable mobility are in the planning stage. Increasing flexibility in electricity sourcing (target of 10 % by fiscal year 2022/23). As part of its mobility plan, Aurubis Belgium provides the option of bike leasing, including e-bikes and speed pedelecs. Employees with speed pedelecs can complete the mandatory safety training in sessions organized by the site. At Aurubis Zutphen (Netherlands), employees can buy a bike from their gross salary, which makes the purchase less expensive and promotes biking to work .

---

**C12.3**

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

- Direct engagement with policy makers
- Trade associations
- Funding research organizations

---

**C12.3a**

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

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Cap and trade	Support with minor exceptions	Aurubis contributes constructively to the policy dialogue at Member State and EU institution level and at each stage of policy development, such as stakeholder consultation, amendment discussions, policy reviews etc., directly as well as through associations such as IFIEC, Eurometaux, ECI, Agoria, etc.	The price taker characteristic of exchange-traded commodities such as copper should be recognized as an eligibility criterion to receive the highest degree of carbon leakage protection, by receiving full free allocation for direct emissions and full compensation in all Member States, for indirect emissions at the best performance level, in a predictable way. This carbon leakage protection will ensure that the investments to expand production and to innovate further will continue to be made in the most energy-efficient European plants. These plants produce products in the most environmentally friendly way possible to help the decarbonization of European society and the world.
Other, please specify (Circular Economy)	Support	The European Commission published a Circular Economy Package (CEP) in December 2015, which includes three very concrete revisions of key legislations the Waste Framework, the Packaging and the Landfilling Directive, as well as a comprehensive Action Plan setting out further measures until 2018. In general, Aurubis very much supports the Circular Economy Package as it will foster recycling and requests a coherent harmonised implementation by Member States (MS) to avoid inconsistencies for companies who are present in various European Union MS.	- Aurubis supports the idea of strengthening eco-design measures towards more Circular Economy and the request to Circular Europe Network to develop standards for product recyclability. - Aurubis asks for measures to stop illegal shipments of electrical waste to non-EU countries. - In the framework of the circular economy, some call for banning or substituting hazardous materials to reduce their presence in material loops and recycled materials. In the context of metals recycling however it is often complex or even 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 is a strong advocate to use industrial synergies in Circular Economy to accelerate decarbonization across different energy-intensive sectors. This includes the application of iron silicate as a substitute material and reductant in the construction which would help decarbonize and increase circularity in this sector.
Other, please specify (Fit for 55 - Green Deal)	Please select	Aurubis currently evaluates the different legislative proposals within the package with a special focus on the ETS review, Energy Efficiency Directive, Renewable Energy Directive and CBAM in order to engage in a constructive policy dialogue at Member State and EU institution level to ensure an adequate policy regime that allows the metals industry to decarbonize without losing global competitiveness. Engagement includes stakeholder consultations, amendment discussions, policy reviews etc., directly as well as through associations such as IFIEC, Eurometaux, ECI, Agoria, etc.	- Avoiding a double cost burden on ETS sectors whose decarbonization pathway is described by the cap and trade system - Do not undermine the current level of carbon leakage protection - Provide flexibility between the technical solutions, market opportunities and the current state of research and technology - Increase incentives for frontrunner companies and the application of innovative technologies

**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. Additionally, Aurubis is the Chair of the Public Affairs Committee, Zero Pollution Action Plan Task Force and Customs Task Force promoting topics such as the framework conditions to increase 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**

International Copper Association (ICA) (incl. European Copper Institute)

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

Europe's copper industry shares the European Commission's vision and supports the idea of the European Green Deal aiming at a low-carbon society and will pursue it with all the resources at its disposal. Support by the European Commission 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 the association.

#### C12.3d

---

**(C12.3d) Do you publicly disclose a list of all research organizations that you fund?**

No

#### C12.3f

---

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

Within the Aurubis Group, we coordinate our political activities in monthly recurring meetings around the fields of Energy & Climate policy, Environmental policy, Circular Economy, Supply Chain & Trade policy. The participants are the members of the Executive Board and the leadership of the Corporate Departments for Energy & Climate Affairs, Sustainability, Environmental Protection, Commercial as well as further leading functions being involved in political issues. The aim of these meetings is to report on relevant political developments and streamline our positions for the Aurubis strategy and coordinate our activities.

#### C12.4

---



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

**Publication**

In mainstream reports, incorporating the TCFD recommendations

**Status**

Complete

**Attach the document**

aurubis\_annual-report\_fy\_19\_20\_.pdf

**Page/Section reference**

p. 56-63 Sustainability p. 112-113 Combined Management Report

**Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

**Comment**

---

**Publication**

In voluntary communications

**Status**

Complete

**Attach the document**

2020\_aurubis\_umwelterklärung\_en.pdf

**Page/Section reference**

Chapter "Foreword" Seite A-2 Chapter "Environmental Protection in the Aurubis Group" Seite A-8 - A-14 Chapter " Energy and Climate Protection" Seite A-20 - A-22 Chapter " Energy and Climate Protection " Seite A-25 - A-27 Chapter " At a Glance – Environmental KPIs for the Aurubis Group " p. A-31 p. B-42, B-45 p. B-45 - B-50 p. B-55 p. B-60 - B-61 p. C-75 p. C-76 - C-77 p. C-81 - C-82

**Content elements**

Strategy

Emissions figures

**Comment**

---

**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

aurubis\_sustainability-report\_19\_20.pdf

**Page/Section reference**

p. 42-49

**Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

**Comment**

---

**C15. Signoff**

---

**C-FI**

---

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

**C15.1**

---

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

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

---

SC. Supply chain module

---

SC0.0

---

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

SC0.1

---

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

	Annual Revenue
Row 1	12429000000

SC0.2

---

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

Yes

SC0.2a

---

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

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

SC1.1

---

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

SC1.2

---

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

SC1.3

---

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

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

SC1.4

---

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

Yes

SC1.4a

---

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

Aurubis continues its involvement in the Environmental Footprint project. With the development of the environmental footprint, the EU Commission wants to create a consistent method for calculating the environmental performance of products and organizations throughout Europe, assess them and facilitate comparisons. In 2013 the Commission published the Environmental Footprint (EF) methodology to measure and communicate the life cycle environmental performance of products (Product Environmental Footprint, PEF) and organizations (Organisational Environmental Footprint, OEF), and launched a pilot phase. Aurubis was active in both areas. Aurubis took a leading role in the OEF pilot on "Copper Production", which was coordinated by the research center of the EU Commission (Joint Research Center, JRC). For the PEF pilot phase, Aurubis worked together with the European organization Eurometaux, the European Copper Institute and other companies from the non-ferrous metals and steel industries on the pilot project "Metal Sheet Metal for Various Applications". In 2017 we finalised the OEF sector-specific rules for copper production and tested how to communicate Environmental Footprint information to stakeholders and the effectiveness of the communication vehicle. The OEF sector rules for copper production have been successfully approved by the Steering Committee on 15 February 2018. The Copper OEF develops a harmonized method to measure and communicate the life cycle environmental performance of copper producing companies, and well demonstrates the positive aspects of copper metallurgy and multi-metal recycling. The PEF category rules for metal sheet have been also finalised and were approved in November 2018. The Environmental Footprint pilot phase ended in April 2018 and a transition phase is now established until possible adoption of policies implementing the Product Environmental Footprint (PEF) and Organisation Environmental Footprint (OEF) methods. Aurubis will continue to contribute to the further developments of the EF methodology during the transition phase. As part of its commitment to sustainable Development, the copper industry is committed to providing data and information to enable users of copper to evaluate its impacts and benefits across the life cycle, from raw material extraction to end-of life recycling. Aurubis has been involved for many years in life cycle assessment of copper cathode and contributed to the generation of cradle-to-gate life cycle inventory (LCI) that evaluates the environmental impacts associated with global copper cathode production ( in cooperation with the International Copper Association).The latest update of the environmental profile of global copper cathode has been released by the International Copper Association at the beginning of 2018. The LCA for the Aurubis Copper Cathode was also published in that year. An update of this LCA will be published in 2021. Aurubis has also performed life cycle assessment studies with the purpose to conduct Environmental product declarations (EPD) on the basis of EN 15804 and ISO 14025 for copper and copper alloys sheets used for architectural applications. The Environmental Product Declarations (EPD) for six Aurubis Nordic products of copper/ copper alloys sheets are published by the Institut Bauen und Umwelt e.V.. A challenge remains: the yearly update of the database.

**SC2.1**

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

**SC2.2**

**(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?**  
No

**SC4.1**

**(SC4.1) Are you providing product level data for your organization's goods or services?**  
No, I am not providing data

**Submit your response**

**In which language are you submitting your response?**  
English

**Please confirm how your response should be handled by CDP**

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

**Please confirm below**

I have read and accept the applicable Terms