

TCFD REPORT

2022

**OUR REPORTING ACCORDING TO THE
RECOMMENDATIONS OF THE TASK
FORCE ON CLIMATE-RELATED FINANCIAL
DISCLOSURES (TCFD)**



EDITORIAL

DEAR STAKEHOLDERS,

The last year has once again shown the dramatic effects of climate change all over the world, emphasizing the urgent need to increase efforts in lowering emissions and building a more sustainable and resilient industry, economy and society. Among other factors, the persistently high share of fossil fuels is a major driver of climate change that requires action, and a transition to a sustainable energy supply remains a key objective in tackling climate change. The challenges associated with this transition were made very transparent by the energy crisis – but the unprecedented price increases and the urgent need to break away from dependency on energy, especially fossil energy, prove that our strategic focus on a circular economy and the long-term ambition to become independent from fossil fuels are the right way forward.

Focusing on the transition to net zero emission and working hard to live up to our vision to become fully circular determined our actions in the year 2022. Major achievements included optimizing our production processes and greenhouse gas (GHG) reduction efforts and continuously working to increase the share of electricity from renewable energies. After communicating our net-zero Scope 1 and Scope 2 climate goals at the beginning of the year 2022, we are planning to publish ambitious Scope 3 targets in the fourth quarter of 2023.

A strong focus will therefore also be on lowering GHG emissions in our up- and downstream value chain. Pioneering the pathway to a circular economy, we constantly work on new solutions in the areas of alternative raw materials and innovative recycling. We strengthen and expand existing and new partnerships with our suppliers, customers, and technology providers. At the same time, we continuously expand our sustainable product portfolio and work on bringing products with a lower carbon footprint and renewable or recycled content into the markets, thus helping our customers to reduce their production carbon footprint in the long term.

One way to address increasing demand from our customers to find ways to reduce their own Scope 3 emissions is our “CQ” concept, which we launched last year. The “CQ” brand suffix marks our circular economy-related offerings (e.g., Desmopan® CQ). CQ stands for circular intelligence and is used for materials with an alternative raw material content of at least 25%. C refers to circularity; Q is derived from IQ. Together, C and Q underline how essential thought-leading, innovative solutions are to drive circularity. Further, we have now included innovative recycling technologies in CQ, e.g., the Evocycle CQ mattress, which covers our developments in recycling solutions for PU-based mattresses. The CQ concept offers solutions to close the loop and marks a further step toward our goal of offering all our products in a climate-neutral version.

At Covestro we focus on the transparency of our commitments. By again achieving an A- rating from the CDP in 2022, we have demonstrated that we are on the right track in driving climate protection forward and actively communicate on our progress. In this second TCFD report, we again want to provide high levels of transparency on how we manage and address climate-related risks and opportunities and how we actively contribute and support the transformation toward a net-zero and circular economy.



Lynette Chung,
Chief Sustainability Officer

About This Report

The Task Force on Climate-related Financial Disclosures (TCFD) was established by the Financial Stability Board for the purpose of developing a uniform framework for reporting on climate-related opportunities and risks. The focus is on disclosing financial risks that companies face due to climate change and the strategies they employ to address these.

In this report, Covestro publishes relevant information on its ongoing transformation towards a climate-neutral company. The report follows the explicit recommendations defined by the TCFD. It has four sections in which we present the following content:

In the first section, we explain Covestro's governance around climate-related risks and opportunities. In the second section we disclose the actual and potential impacts of climate-related risks and opportunities on our strategy, business, and financial planning where such information is material. In the third section, we describe how we identify, assess, and manage our climate-related risks. Lastly, in the fourth section, we present the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

All data in this TCFD report is as of, or for, the 2022 calendar year unless otherwise noted. It also includes references to the CDP (formerly known as Carbon Disclosure Project) Climate Change Response 2022 (reporting year: 2021).

Structure of the Covestro TCFD Report 2022 based on TCFD recommendations

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¹ Compensation schemes are important components of corporate governance to incentivize and steer the implementation of climate commitments and actions inside a company. We therefore include this important aspect here with reference to the section on Metrics & Targets.

Forward looking statements

This document may contain forward-looking statements based on current assumptions and forecasts made by Covestro AG. Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. These factors include those discussed in Covestro's public reports which are available at www.covestro.com. The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.

1 Governance

Our governance around climate-related risks and opportunities.

Board Oversight

Sustainability is a core element of our Group strategy with an increasing impact on our business activities. Oversight of sustainability at Covestro begins with the company's highest governing body, the Supervisory Board, whose Sustainability Committee was established in the year 2021. It advises the Supervisory Board, some committees, and the Board of Management in particular on issues of sustainable corporate governance and on the company's activities relating to environmental, social, and governance criteria. Shareholders and employees are equally represented on the Sustainability Committee, with two representatives each. As of December 31, 2022, the proportion of women was 25%. The committee is chaired by Lise Kingo, a Supervisory Board member with strong expertise in the area of sustainability, including climate change-related matters. Ms Kingo previously served as CEO & Executive Director of the UN Global Compact.

As part of its function, the Sustainability Committee supports, monitors, and issues recommendations on the Board of Management's ESG strategies, targets, and initiatives, including the environmental, social, societal, ethical, and circular economy aspects of Covestro's business along the entire value chain. The Sustainability Committee helps the Audit Committee examine sustainability-related statements ahead of the audit of the Group's nonfinancial statement. Furthermore, it advises the Human Resources Committee on setting environmental, social and governance (ESG) targets for Board of Management compensation.

+ Additional information is available in the Covestro Annual Report 2022 – Composition of the Board of Management and Corporate Governance website: www.covestro.com/en/company/management/corporate-governance

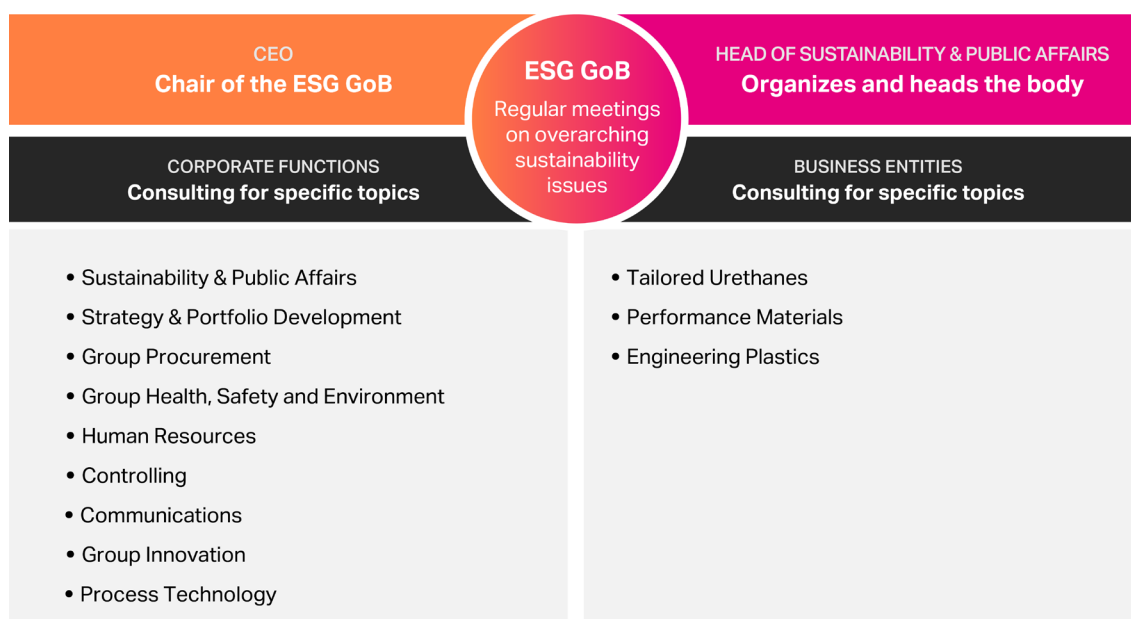
Management's Role

Even though responsibility for sustainability has been assigned to our CEO, this area is dealt with by the Board of Management as a whole. The management monitors success, sets priorities, and, where necessary, adjusts the allocation of resources. The meetings of the Board of Management, which are regularly convened, addressed a number of different sustainability focus areas in the course of the fiscal year. The agenda included, for example, the targets to reduce Scope 1 and Scope 2 GHG emissions announced at the beginning of 2022, progress in the drafting of reduction targets for Scope 3 GHG emissions, regulatory developments such as the EU Taxonomy Regulation, the German Act on Corporate Due Diligence Obligations for the Prevention of Human Rights Violations in Supply Chains, and the assessment of our investment portfolio according to sustainability criteria.

A central governance body for environmental, social, and governance (ESG) issues was set up in the year 2021 to ensure continual progress and the permanent integration of our sustainability-related activities into all areas of the company. The ESG Governance Body (ESG GoB) is staffed with top-level executives from the business entities and relevant corporate functions. Depending on the topic, additional internal and external guests may be invited to participate. The Chief Executive Officer (CEO) chairs the committee, and the Head of the Corporate Sustainability and Public Affairs (S&PA) function is tasked with organization and management.

The committee is responsible for Group-wide sustainability issues, oversees mission-critical projects and activities related to sustainability, and possesses the corresponding decision-making powers. In addition, in-depth discussions are held throughout the Group to identify important issues and trends and to promote the implementation of sustainability-related activities in the corporate functions and business entities. The goal here is to manage sustainability issues, including related risks and opportunities, consistently and holistically and to accelerate the implementation of the sustainability agenda. In the reporting year, the topics discussed in regular ESG GoB meetings included the targets for Scope 1 and Scope 2 GHG emissions, which were announced by Covestro at the beginning of the year 2022, the company strategy relating to the circular economy and Scope 3 GHG emissions, and initiatives related to assessing the sustainability performance of its product portfolio. It also evaluated the company's performance and progress in ESG ratings and rankings.

Composition of the ESG Governance Body (ESG GoB)



The head of the corporate S&PA function, who also acts as Chief Sustainability Officer (CSO), reports to the CEO. As a corporate function, S&PA defines the sustainability strategy and spearheads general sustainability projects and programs in the company. In addition, S&PA coordinates Covestro's sustainability activities and supports the other corporate functions and business entities in implementing them in operations and business activities. Furthermore, it represents Covestro's interests outside the company.

The Corporate Sustainability & Public Affairs function is responsible for central, group-wide initiatives and activities in circular economy, climate and energy, sustainable product portfolio management, stakeholder engagement, social topics and public affairs and government relations at global and regional levels.

+ [Additional information is available in the Covestro Annual Report 2022 – Sustainability](#)

Compensation System

Compensation schemes are important components of corporate governance to incentivize and steer the implementation of commitments and actions inside our company. Therefore, the system for compensating members of the Board of Management and employees is aligned with the company's strategy and is structured to help Covestro achieve sustained business success and meet its strategic goals.

At Covestro, we integrate ESG KPIs into our compensation systems in order to further drive the implementation of our Sustainable Future strategy. We have integrated KPIs within both our short-term and long-term incentives.

Since fiscal 2022, we have measured our business success on the basis of selected environmental criteria, in addition to financial criteria. The direct and indirect GHG emissions, measured in terms of CO₂ equivalents, of the main sites were to this end integrated into the management system. In future, we also want to include social and governance criteria to cover all three of the environmental, social, and governance aspects. This sustainability component – one of a total of four – is relevant for the Covestro Profit Sharing Plan (Covestro PSP), our short-term variable compensation program, which as from the year 2022 applies to all Covestro employees worldwide, including the Board of Management; any exceptions are essentially due to collective bargaining arrangements

We also have a sustainability component in our long-term incentive system. Back in 2021, we introduced such a component – one of a total of three – into Prisma, our long-term variable compensation system for the Board of Management and eligible senior management employees. It specifies a reduction target for annual GHG emissions classified as Scope 1.

The entire compensation system for the Board of Management, including long-term incentive and short-term incentive components are set forth in the 2022 Compensation Report which will be presented to the 2023 Annual General Meeting for approval.

+ [Additional information is available in the Covestro Annual Report 2022 – Compensation Report](#)

2 Strategy

Actual and potential impacts of climate-related risks and opportunities on our business, strategy, and financial planning.

Covestro is fully committed to sustainability. Our Group's Sustainable Future strategy aims to drive sustainable growth and make the company "fully circular." Further details of this strategy are provided and operationalized in our specialized global Circular Economy strategy program. Our goal is to return products and materials to the value cycle at the end of their life – as a whole, in the form of polymers, or in other molecular or chemical forms. While following this agenda is our overall contribution to promoting and enhancing the circular economy, it also reflects our commitment to transforming Covestro in order to prepare for the future, mitigate emerging risks and actively take opportunities.

Our strategy helps us address the environment-related sustainability aspects of our activities. For Covestro as an energy-intensive company with complex value chains, this means not only rigorously driving energy efficiency improvements but also moving away from the use of fossil-based raw materials, endorsing a holistic approach to regenerative production and business models. This shift helps us launch climate-friendly products, set ambitious and tangible climate goals, and go for new ways of cooperation on R&D, value chain engagement, and market development.

Ultimately, all this will guide our business activities and our environmental footprint onto the pathways required for humanity to stay within planetary boundaries. Our strategy is designed to help meet the Paris objective of limiting global warming to 1.5 degrees.

In the three subsections of this chapter, we showcase three substantive risks and opportunities, describe our response to these challenges, and lastly reflect on how the approaches we apply help us improve our resilience in tackling these risks and opportunities and further challenges to our business in the ongoing transformation of our economy.

Risks and Opportunities

In our systematic identification and analysis of risks and opportunities, as laid out in our Annual Report 2022 and our CDP Climate Change Response 2022, we use risk and opportunity categories in line with the TCFD recommendations. In this context, risks and opportunities both include direct physical drivers and indirect transition related drivers for our business and its environment. This analysis includes an in-depth discussion of different time horizons. We consider the effects this has throughout our organization. Apart from our direct operations, this covers impacts on products we provide in our markets as well as ongoing cooperation activities in our supply and value chains.

We have identified material climate-related risks and opportunities related to both physical drivers and transitional drivers at Covestro. The following are examples of material climate-related risks and opportunities to illustrate how we describe and analyze them.

Risk example A illustrates a physical risk that may directly or indirectly impact our business, e.g., by causing loss or damage to assets or temporary disruption to our logistics for important production sites. The key driver here is permanent changes in precipitation patterns in the Rhine River basin, which could affect our logistics in either direction and lead to additional costs for our business. Other physical risks are for example those related to acute drivers such as potential hurricanes at our sites in the Gulf of Mexico.

Covestro example: Physical risk¹**Risk example A****Low water levels on the Rhine River**

The low water levels of the Rhine River (Germany) may pose major challenges for our business. Barge shipments on the Rhine River are a major means of transportation to supply Covestro's production sites in Leverkusen, Dormagen, and Uerdingen with necessary raw materials and transport finished goods.

Temporary closure of river traffic due to critically low water levels for more than five consecutive days (as happened in 2018), may affect critical raw material supply for these production sites. This may temporarily impact on our production output and increase our logistics costs as a result of shifting to alternative shipping modes (e.g., trucks and railroads).

¹ Data source: CDP Climate Change Response 2022

Furthermore, climate change already induces shifts in policy, technology, as well as social and economic landscapes. In combination, these developments can be described as climate-related transitional risks. Our risk example B on increased costs from the EU ETS is an example of policy-driven risk factors. The existing system plays a role here – as does the dynamically evolving regulatory environment, which is changing the relevant parameters and the outlook on impacts and adaptation requirements.

Covestro example: Transitional policy related risk¹**Risk example B****Increased costs from the EU ETS**

Since the Paris Agreement was ratified in 2015, we have been observing a tightening of existing carbon pricing schemes, especially in the European Union (EU). The EU Emission Trading Scheme (EU ETS), which covers around 300 kilotons of our Scope 1 GHG emissions, is the most relevant pricing scheme for Covestro.

As Covestro competes with its products in global markets, additional direct and indirect costs from the EU ETS may affect our international competitiveness. If EUA prices increased, this would result in additional direct costs to our operations. Nevertheless, as of today, Covestro is sufficiently covered with certificates and employs a sourcing strategy to lower the risk of a negative financial impact in future.

¹ Data source: CDP Climate Change Response 2022

Further material climate related risks for Covestro are market and technology driven, which our strategy and business activities are intended to address proactively. Our illustration in risk example C briefly discusses a downstream deselection risk that may impact on our revenues and competitiveness, unless we adapt our portfolio to customers' aspirations toward more climate-friendly products.

Covestro example: Transitional market related risk¹**Risk example C****Decreased revenues due to changing customer behavior**

Customers increasingly demand sustainable products with climate-friendly attributes. As a company in an energy-intensive industry and producer of mainly fossil-based products, Covestro may face a deselection risk on our clients' side if we do not adapt our portfolio with innovative and sustainable products that meet this future demand. Such changing customer behavior may result, for example, in a preference for competitor products over Covestro products or avoidance of certain product applications we currently supply to our markets. Covestro is enhancing the product portfolio in terms of sustainability aspects and acts as one of the transformational leaders in the chemical industry, as described in our corporate vision to become fully circular.

¹ Data source: CDP Climate Change Response 2022

The flipside of risks in a changing environment, if options to adapt and innovations are at hand, is new climate-related opportunities. As one of the technology leaders in our industries and an early mover on climate-relevant developments, ongoing adjustments to our own business will also help us to capitalize on emerging opportunities. The opportunity impact drivers are identified in both existing and emerging markets and range from increased resource efficiency in our production, the upscaling of renewable and lower-emission energy sources, to the availability and expansion of innovative climate-friendly products and the development of new markets. Benefiting from growing demands for more sustainable products ultimately depends on the realization of customers' demand for these products.

Opportunity examples A and B below illustrate two market-driven opportunities where we may benefit from growth in demand for existing products. These are either products that play an important role for energy efficiency downstream in their use phase or products where alternative raw materials play a role, e.g., due to renewable inputs in products, which are a major element in our circular economy strategy. Our expansion of such more sustainable products may increasingly benefit our revenues in the mid-term. With increasing customer demand for more sustainable and climate-friendly solutions, we also expect new markets to emerge, either for our existing products or for new products and technologies. Being one of the technology leaders, we see an opportunity in expanding our business into new markets. Example opportunity C illustrates this in the growth segment for battery technology in electronic vehicles.

Covestro examples: Opportunities in existing and emerging segments¹

Opportunity example A

Growing demand for products increasing energy efficiency in buildings

In order to increase the energy efficiency of buildings in line with global climate and energy objectives, demand for products that help to reduce energy loss in buildings is rapidly increasing. Covestro produces methylene diphenyl diisocyanate (MDI) and polyols that are the key raw materials for the production of polyurethane (PU) foams for insulation boards and panels. As such we see the business opportunity from the PU building insulation applications, which is expected to continue to grow strongly due to its key role in reducing the effects that buildings have on climate.

Opportunity example B

Growing demand for plant-based raw materials in the coatings sector

Covestro's products form the backbone of paints, coatings, adhesives, and inks for a diverse range of applications including automotive, building and construction, furniture, footwear, and industrial. Covestro's Decovery® portfolio in this sector includes products with as much as 52% plant-based content. All raw materials are sourced in a more sustainable manner. As consumer demand for less carbon-intensive products based on alternative raw materials is expected to increase, Covestro sees a strong business opportunity for its Decovery® products.

Opportunity example C

New potentials in electric vehicle (EV) battery technology

Climate change is driving the electrification of the mobility sector. The expected growth of battery EVs will mean the creation of new segments for high-performance materials. Additional growth is expected in the segment of electric vehicle supply equipment that will be part of the future electric vehicle ecosystem infrastructure. Covestro believes its high-performance polycarbonate materials can play a decisive role in these emerging segments. Here we see a clear opportunity to expand our business in the automotive industry.

¹ Data source: CDP Climate Change Response 2022

+ Additional information is available in the Covestro CDP Climate Change Response 2022: module C2: C2.2a, C2.3a, C2.4a

Response to Risks and Opportunities

We aim to avoid or mitigate risks by actively deciding on the form of response. At the same time, we strive to take maximum advantage of opportunities by incorporating them into our entrepreneurial decisions. We bear manageable and controllable risks that are in reasonable proportion to the anticipated opportunities. Where necessary, we take appropriate countermeasures or transfer them to third parties (such as insurers) to the extent possible and economically acceptable. Opportunities and risks are continuously monitored using indicators so that, for example, changes in the economic or legal environment can be identified at an early stage and suitable countermeasures can be initiated, if necessary.

In the tables below we present the results of our assessments of the three material climate-related risk and opportunity examples and our mitigation response from our assessment in 2022.

Covestro examples: Risk impacts on our business and our responses¹

Risk example A

Low water levels at Rhine River

Potential impact: The risk-assessed impact is medium and includes losses from shipments of major precursors between Covestro sites along the Rhine River and production losses incurred due to a limitation of raw material supplies from external vendors. The calculated costs of foregone business are mainly driven by the range of possible durations of the low water situation, with cost ranging from €16 million (lower end) to €48 million (upper end of the cost range).

Our response: The production network including all inbound and outbound Rhine River material flows are regularly analyzed and documented. Additional mitigation measures include safety stocks, increased logistics capacities, use of and planning for alternative routes and means of transportation.

Risk example B

Increased costs from the EU ETS

Potential impact: Assuming additional instruments like the Carbon Border Adjustment Mechanism and the end of free EUA allocation as well as increasing certificate prices, we calculated an additional need of around 900,000 EUAs for Covestro until 2030, which we consider medium impact. Based on the lower and higher end of the potential certificate prices (€40 or €80), additional costs will accrue, ranging from €40 million to €80 million. We continuously monitor price and legal developments and adjust the assumed certificate prices, if necessary.

Our response: We mitigate the risk by reducing emissions from our own operations. Moreover, we implement a hedging and sourcing strategy. A key part of such a strategy is the purchase of EUAs at defined price limits.

Risk example C

Decreased revenues due to changing customer behavior

Potential impact: Based on an internal Covestro survey, we estimate the share of sales to customers driven by sustainability at 9%. Further assuming a deselection by these customers in the range of 10% to 15% on average, our annual sales could fall by €95 million to €143 million per year respectively, which we consider medium impact.

Our response: To mitigate the risk of decreasing demand, we are enhancing our product portfolio in terms of sustainability aspects in order to meet future customer preferences.

¹ Data source: CDP Climate Change Response 2022

Covestro examples: Opportunity impacts on our business and our responses¹

Opportunity example A

Growing demand for products that increase energy efficiency in buildings

Potential impact: Based on Covestro's sales in 2020 and expected demand growth of between 5% and 6% in this segment, we calculate potential sales growth of €60 million to €74 million per year in the medium term (until 2025), which we consider medium impact.

Our response: In order to realize this business opportunity, Covestro is investing approximately €0.4 billion in its production capacities in Europe for raw materials for PU insulation foams.

Opportunity example B

Growing demand for plant-based raw materials in the coatings sector

Potential impact: We consider the impact medium: We expect annual sales of Decovery® products to reach €100 million (conservative estimation). The figure comprises estimated sales for our major segments: Industrial Wood, Deco & Flooring & Printing and Packaging. The final level of the potential financial upside will be influenced by a number of different factors such as increased demand for sustainable paints and products, increased legislation on GHG emissions and bio-based raw materials, and increased brand-owner pull.

Our response: Our focus is on investing in R&D and in application development and marketing, including dedicated activities to develop and service the growing business.

Opportunity example C

New segment potentials in EV battery technology

Potential impact: For new applications of electric vehicle battery pack and electric vehicle supply equipment, Covestro sees a high-impact opportunity for additional sales of thermoplastic material of approximately €200 million per year by 2025. This expectation is based on strong self-commitments from car manufacturers, regulatory developments, and visible shifts in customer preferences.

Our response: To realize this opportunity, we invest in the modification and/or expansion of production facilities as well as in product development, application development, and marketing.

¹ Data source: CDP Climate Change Response 2022

+ Additional information is available in the Covestro CDP Climate Change Response 2022: module C2: C2.3a, C2.4a; module C3: C3.2a, C3.3, C3.4

The three exemplary risks in this report showcase a number of approaches we follow when addressing risks and opportunities for our business. These are, however, often no stand-alone measures but embedded in our broader Circular Economy and decarbonization strategies. The actions described in the subsequent paragraphs illustrate this.

In 2022, as part of our Circular Economy strategy, we actively supported several initiatives to promote and enhance the emerging circular economy. Our focus here was on advocacy and market design, technological development, the identification of technology paths, and the development of appropriate nonfinancial indicators. In this work, we reach out to other key players in and beyond our value chain to drive research and progress in this area. In 2022 we therefore pursued and enhanced our cooperation through various alliances, such as the World Economic Forum (WEF) and the Alliance to End Plastic Waste. On the global and regional level, we engage actively in industry associations and cooperate with universities to foster circular economy and climate-related topics. This includes for example the Chemistry4Climate initiative of the Association of the German Chemical Industry (Verband der Chemischen Industrie e.V., VCI), our cooperation with RWTH Aachen University, Aachen (Germany), Tongji University, Shanghai (China) and Carnegie Mellon University, Pittsburgh (United States).

To drive energy-efficiency measures on the ground wherever possible we employ our dedicated program STRUCTese™. In the reporting year it was used in many of our energy-intensive production facilities around the world, helping to increase energy efficiency and reduce emissions.

Power purchase agreements (PPAs) for renewable electricity supply play an increasing role in our energy procurement, especially for our sites in Belgium, China and Germany. In the year 2022, Covestro signed multiyear PPAs in China, including one for 300 GWh of green power distribution annually. It will help us cover around 30% of the electricity needs of an important production site in Shanghai. Furthermore, Covestro has signed a long-term corporate power purchase agreement for solar-generated electricity, which secures 63 megawatts of capacity from a solar farm in Germany. The solar power will be deployed at the German Covestro sites in Dormagen and Krefeld-Uerdingen for 15 years from the beginning of 2022 onward.

In the reporting year, Covestro also expanded its long-term partnerships on the procurement of biofuels and green hydrogen, including its derivatives. One example is the non-binding memorandum of understanding between Covestro and an Australian producer of green hydrogen and ammonia. Green hydrogen and its derivatives play a key role for the chemical industry, as both an alternative feedstock and a source of clean energy. The contract will help Covestro acquire up to 100,000 metric tons equivalent of green hydrogen per year likely from 2024 onward. Replacing grey hydrogen and its derivatives, it will enable Covestro to reduce GHG emissions by up to 900,000 metric tons CO₂ per year. The deliveries are earmarked for three potential sites in Asia, North America, and Europe.

At Covestro, we use climate-related targets to steer our actions. We use them also to manage our risks and opportunities. In 2022, we intensively focused and worked on our goal to set Scope 3 GHG emissions and circular economy targets which will help us define and communicate ambitious targets for Scope 3 emissions by the second half of 2023.

→ See “Metrics and Targets.”

Resilience of Our Strategy

At Covestro, both our vision to become fully circular and our Sustainable Future strategy are built on robust targets and underlying measures that address challenges and opportunities we face and make our vision and strategy even more resilient. Reducing our GHG emissions to achieve climate neutrality as well as other measures to contribute to a circular economy go hand in hand in this context. Our measures certainly also address the examples of risks and opportunities given above.

We improve our resilience by tackling climate-related challenges and risks in our value chain from an early stage. We address existing and emerging regulations, physical and other transitional risks, and the opportunity for increased demand from new markets for sustainable products. As our risk example on carbon pricing (risk example B) shows, we address challenges from regulation heads-on. We drive emission reductions at our own installations, apply an internal carbon price in our financial planning as well as through hedging. We also reduce our physical risk exposure. As laid out in risk example A, our contingency planning and other precautionary measures will ensure resilience of our logistics in case that our production sites along the Rhine River are again faced with low water river levels in the future. As we deal with our climate-related risks and opportunities in a productive way, we increase the resilience of our business.

In terms of opportunities, we strongly invest in maintaining and expanding our leading technology position in existing and new segments. One solution is to expand our production capacities to supply growing segments with existing products, e.g., the insulation materials segment (opportunity example A). Other opportunities involve a shift to alternative raw materials for our products (as shown in opportunity example B) or the development of new products or applications for emerging segments, e.g., products connected to the fast-expanding field of battery technology and electric vehicles (opportunity example C). Other measures and innovations are already lowering our production-related emissions and consumed energy and will continue to do so. This will further strengthen our resilience and our competitive position in a rapidly transforming economy. By realizing all these business opportunities, we also effectively limit the risk of deselection (risk example C) as well as our exposure to other kinds of risks.

The year 2022 was influenced by multiple global crises, impacting Covestro due to its electricity and gas consumption as an energy-intensive company. The Russian war of aggression in Ukraine severely impacted the availability and pricing of energy and raw materials in the year 2022, particularly in Europe. In general, the situation led to higher shares of high-carbon fossil energy sources in the market and thus to higher GHG emissions in general across the economy. But even in light of recent developments, we are committed to our climate and broader transformation targets. We may see short-term effects but in the long run we do not expect the war and the lasting changes it may prompt to have a negative impact on our ability to deliver on our GHG reduction commitments. In the year 2022, we saw no effects on our overall emissions. The main reason for this was the reduction in production activities and thus a reduced energy demand, particularly for electricity and steam. The associated emissions were also influenced by changes in local emission factors and the purchase of electricity from renewable sources.

Covestro will remain firmly committed to transforming its business model toward circularity and aligning it with a low-carbon and ultimately net-zero world in accordance with the Paris Agreement. As outlined in the previous section on our strategic response, we systematically use strong partnerships and cooperations along our complex value chains to strengthen the resilience of our climate and circular economy strategy and thus our business model. We therefore strongly drive energy efficiency improvements at our sites around the world and expand the use of alternative raw materials, renewable energies, and hydrogen in our processes. We also work continuously on our climate targets – with a new ambitious Scope 3 target to be published later this year. All these components of our comprehensive strategy help us address climate-related risks head-on and open up new opportunities for Covestro's lasting business success in the emerging net-zero world.

+ [Additional information is available in the Covestro Annual Report 2022 – Climate Neutrality](#)

+ [Additional information is available in CDP Climate Change Response 2022, module C3: C3.2, C3.2a](#)

3 Risk Management

Our process to identify, assess, and manage climate-related risks.

Conscientious management of opportunities and risks is part of responsible corporate governance and is the foundation of sustainable growth and financial success for us. At Covestro, this encompasses identifying, assessing, and managing climate-related risks and opportunities to make sure our business activities are appropriate to achieve our vision to become fully circular and achieve climate neutrality.

Risk Identification and Assessment Process

Our opportunity and risk management begins with the strategy and planning processes, from which relevant external and internal opportunities and risks of an economic, ecological, climate-related, or social nature are derived. Opportunities and risks are identified by observing and analyzing trends along with macroeconomic, industry-specific, regional, and local developments. The identified opportunities and risks are subsequently evaluated and incorporated into our strategic and operational processes, including those related to our materiality assessment for sustainability aspects. As part of our climate-risk identification activities, our activities include continuous monitoring of existing and emerging regulatory requirements related to climate change, such as the regulations under the EU Green Deal.

Generally, our early risk warning system, which is also used to identify climate-related physical and transformational risks, satisfies the legal requirements regarding an early warning system for risks pursuant to Section 91, Paragraph 2 of the German Stock Corporation Act, and is aligned with the international risk management standard COSO Enterprise Risk Management – Integrated Framework (2004).

Risks are identified, evaluated, and controlled in the operating divisions and corporate functions by the respective risk managers, who are organized in various global sub-committees. The Covestro Corporate Risk Committee met three times in fiscal 2022 to review the risk landscape as well as the various risk management and monitoring mechanisms that are in place, and to take any necessary measures. Additionally, we conducted an ad-hoc process for newly identified risks throughout the year and immediately incorporated such risks into our risk management system. These ad-hoc risks are identified and their handling is determined based on risk assessments and on the defined thresholds. In addition, the Corporate Audit function complements the monitoring process with process-independent monitoring.

Risks are evaluated using estimates of the potential financial impact taking into account countermeasures, the likelihood of their occurrence and their relevance for our external stakeholders. In our assessment of climate related risks we apply defined time horizons that also fit the long-term range of climate actions ranging from short-term horizons of one year, through mid-term horizons of one to ten years, to long-term horizons of up to 30 years. To rate our climate related risks with regard to their accumulated direct financial impact on EBITDA, we make use of categories ranging from less than €50 million to more than €1 billion.

Financial risks are evaluated using estimates of the potential impact after taking into account countermeasures and the likelihood of their occurrence. The potential economic losses are projected using the expected EBITDA loss and, in some individual cases, the FOCF loss. All material risks and the respective countermeasures are documented in the risk management software, which is used throughout the Group. The risk management system is reviewed regularly over the course of the year. Significant changes must be promptly entered in the software and reported to the Board of Management. In addition, a report on the risk portfolio is submitted to the Audit Committee several times a year and to the Supervisory Board at least once a year.

The subcommittees are supported by the corporate risk management (CRM) in identifying and evaluating both risks and opportunities. Once identified, risks and opportunities are reported back to CRM for further assessment. If their direct financial impact cannot be quantified, a qualitative impact assessment is conducted by the reporting function and evaluated by CRM.

CRM analyses each single risk applying the quantitative and qualitative criteria and thresholds. Risks and opportunities are defined as 'substantive' if they exceed €50 million in terms of their quantified financial impact (e.g. reflecting increased cost or loss of profit due to lost sales). All substantive risks and opportunities are then documented in the CRM database so that the risks and opportunities can subsequently be tracked and managed.

+ [Additional information is available in the Covestro Annual Report 2022 –Opportunity and Risk Report](#)

Risk Management Process

Climate-related risks and opportunities are managed on two levels: on the individual as well as on the portfolio level. While individual risk and opportunity management focusses on regular reviews and the implementation of mitigation measures, portfolio risk and opportunity management ensures that no risk exposure is taken that threatens the company's existence.

CRM is responsible for regularly reporting on single major risks and the overall risk exposure of the Covestro Group. In addition, single risks with an impact of more than €50 million have to be reported to the Board of Management without undue delay.

Based on the outcome of the risk assessment, the conventional management strategies of risk prevention, mitigation, transfer, or acceptance are applied. The selection of strategy chosen depends on the impact and likelihood as well as the cost structure of the various options at hand. Once a measure is selected, an implementation plan to execute the response is developed. Due to the iterative annual process, risks will be addressed multiple times and any updates on the effectiveness of the risk response will be discussed.

+ [Additional information is available in the Covestro Annual Report 2022 –Opportunity and Risk Report](#)

Integration into Enterprise-wide Risk Management

As described in the previous chapters, climate-related risk identification, assessment and management are incorporated into our Corporate Risk Management, along our entire value chain. Risk management, including climate-related risk management, is interlinked with other steering activities within Covestro. In particular, it is closely linked to investment evaluations as well as to financial planning and forecasting.

+ Additional information is available in the [Covestro Annual Report 2022 – Opportunity and Risk Report](#)

4 Metrics and Targets

Metrics and targets we use to assess and manage relevant climate-related risks and opportunities.

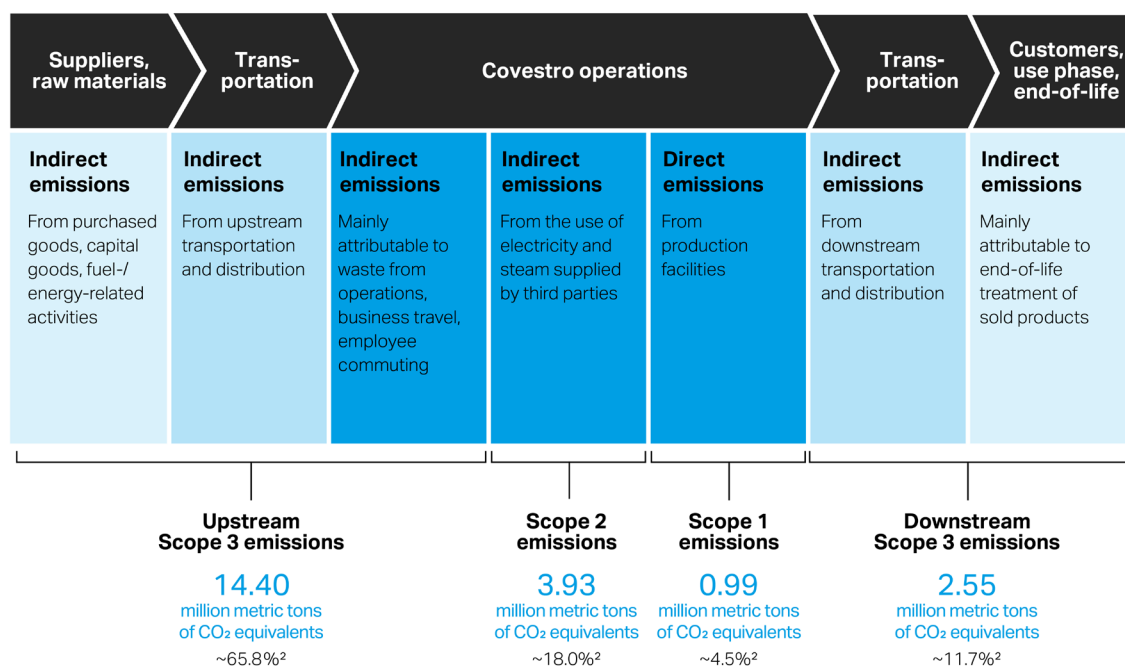
Climate-related Metrics

Climate-related risks we face are closely connected to high emission trajectories. Measuring and reducing emissions in line with ambitious targets is an essential part of our risk and opportunity management. Below, we report on this on the basis of well-established standard metrics.

Covestro calculates greenhouse gas emissions according to the internationally recognized standards of the GHG Protocol. Direct emissions, e.g., from burning fossil energy sources and from our production processes (Scope 1), as well as indirect emissions from the provision and use of energy produced outside the company (Scope 2) at all environmentally relevant sites, i.e., all production sites and relevant administrative sites with a significant impact on the environment, are included in the calculations.

In addition to CO₂, Scope 1 emissions comprise all relevant greenhouse gases, including nitrous oxide (N₂O), methane (CH₄), partly fluorinated hydrocarbons, and sulfur hexafluoride (SF₆).

Upstream and downstream GHG emission data along the entire value chain (Scope 3) has been calculated and reported at Covestro since the year 2021. All categories as defined in the GHG Protocol were reviewed for relevance in order to quantify all emissions associated with Covestro's business activities as completely as possible. Out of the total of 15 Scope 3 categories in the GHG Protocol, 9 are relevant for Covestro and we report the relevant emission values for them. The basis for calculating the Scope 3 indirect GHG emissions are internal activity data and emission factors from commercially and publicly available sources, or sources recommended by the GHG Protocol. The emissions for each Scope 3 category are based on individual calculations, which are described in detail in our latest Carbon Disclosure Project (CDP) questionnaire. By continually improving the data basis and calculation methods used, we will further advance the accuracy of our Scope 3 emissions reporting on an ongoing basis. In 2022, our Scope 3 emissions reporting was audited with reasonable assurance for the first time, following a limited assurance audit of this data for the 2021 report. This means that, as of 2022, we report all Scope 1, Scope 2, and Scope 3 GHG emissions with reasonable assurance and disclose these figures in our Annual Report.

Covestro's GHG emissions¹ along the value chain

¹ Portfolio-adjusted based on the GHG Protocol; financial control approach; global warming potential (GWP) factors correspond to the IPCC's Fifth Assessment Report.

² Share of total GHG emissions (sum of Covestro's Scope 1, Scope 2, and Scope 3 emissions).

The Supervisory Board views the reduction in GHG emissions to be a relevant performance indicator to ensure the alignment of Covestro Group's operations with the vision of becoming fully circular and our company strategy, Sustainable Future. Therefore, this is also reflected in our remuneration policy which incentivizes and rewards climate-related commitment and performance inside the organization.

→ See "Governance."

To reach the goal of becoming climate-neutral, we evaluate the CO₂ emissions (Scope 1 and Scope 2) from our investment projects as part of our investment project steering process. Since fiscal 2020, in addition to calculating the standard project ROCE (return on capital employed), we have conducted sensitivity analysis, assuming an internal carbon price of €40 per metric ton of CO₂ equivalents (CO₂-e) for investments larger than €5 million. From 2022 onward we use two complementary concepts to incentivize CO₂ reduction in investment projects: a matrix to show the trade-off between financial impact ("ROCE over threshold") and CO₂ impact ("CO₂-e per €1 million of investment") and a ROCE calculation that considers an internal carbon price of €100 per metric ton of CO₂ equivalents. A standard sensitivity analysis includes a CO₂ price of €200 per metric ton of CO₂ equivalents instead of the current €40 per metric ton of CO₂ equivalents. For the internal carbon pricing as part of our capital allocation, we apply a 10-year timeframe in most cases. The internal carbon price is planned to be reviewed regularly and to be adjusted, if needed.

+ Additional information is available in the Covestro Annual Report 2022 – Climate Neutrality

As described in the Governance section to this report, we also use climate-related targets in our compensation schemes. All related metrics to that can be found in our special Compensation Report as part of the Annual Report 2022.

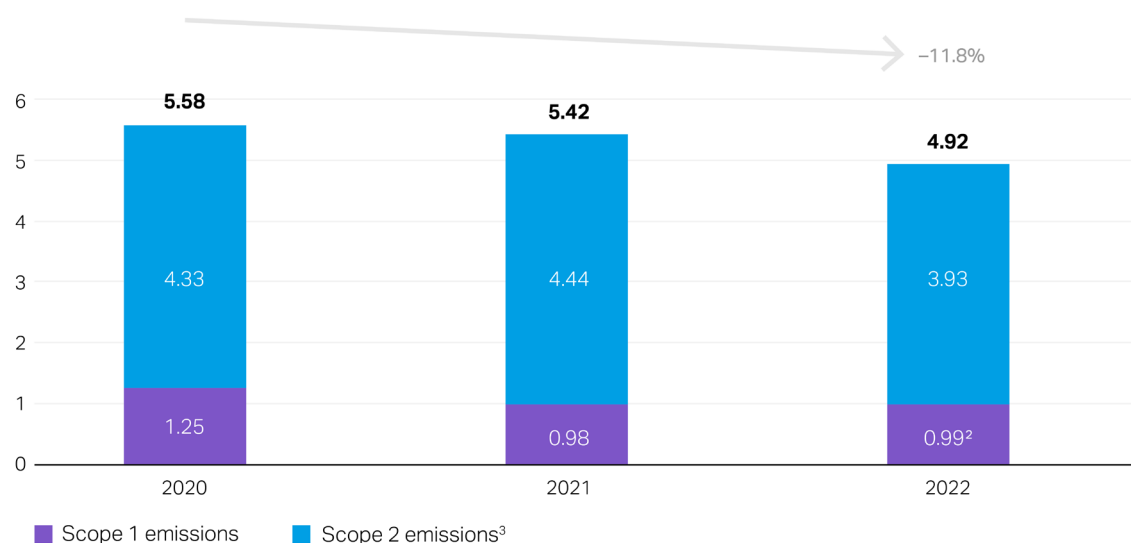
+ Additional information is available in the Covestro Annual Report 2022 – Compensation Report

Scope 1, 2, 3 Greenhouse Gas Emissions

Absolute Scope 1 and Scope 2 GHG emissions at all environmentally relevant sites declined by 9.2% compared with the previous year. Direct GHG emissions increased by 1.3% and indirect GHG emissions decreased by 11.5%. This was mainly caused by the reduction in production activity and the resulting drop in energy demand, especially for electricity and steam. The associated emissions were also affected by changes in local emission factors and the purchase of electricity from renewable sources. For example, the Shanghai (China) site met over 30% of its electricity demand from renewable sources in the year 2022, thus reducing its Scope 2 emissions from electricity. In total, this led to a decrease in the calculated GHG volumes.

Scope 1 and Scope 2 GHG emissions¹ in the Group

million metric tons of CO₂ equivalents



¹ Portfolio-adjusted based on the GHG Protocol; financial control approach; global warming potential (GWP) factors correspond to the IPCC's Fifth Assessment Report.

² In the year 2022, 78.6% of emissions were CO₂ emissions, 20.5% were N₂O emissions, 0.7% consisted of partly fluorinated hydrocarbons, and 0.1% each were attributable to CH₄ and SF₆.

³ In combustion processes, CO₂ typically makes up more than 99% of all greenhouse gas emissions; this is why we restrict ourselves to CO₂ when calculating indirect emissions. Location-based emissions amounted to 3.82 million metric tons of CO₂ equivalents in the year 2022 (previous year: 4.40 million metric tons of CO₂ equivalents).

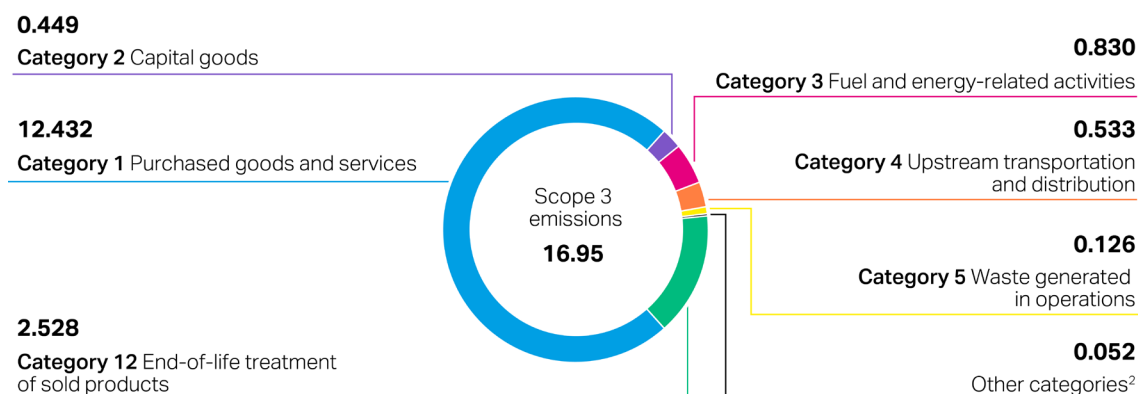
Upstream and downstream greenhouse gas emission data along the entire value chain (Scope 3) has been collected and reported at Covestro since the year 2021. The Scope 3 indirect GHG emissions represent 77.5% of the Group's total GHG emissions (previous year: 80.1%).

Scope 3 emissions calculated in fiscal 2022 amounted to 16.95 million metric tons of CO₂ equivalents (previous year; 21.84 million metric tons of CO₂ equivalents). Most of our Scope 3 emissions are attributable to categories upstream in our value chain. Categories 1 "Purchased goods and services," 12 "End-of-life treatment of sold products," and 3 "Fuel- and energy-related activities" are the main contributors to our Scope 3 indirect GHG emissions. Biogenic CO₂ emission equivalents stemming indirectly from the value chain totaled 118,659 metric tons of CO₂ equivalents (previous year: 99,052 metric tons of CO₂ equivalents) in the reporting period in absolute terms and are disclosed separately from the total volume of Scope 3 emissions in accordance with the GHG Protocol and the World Business Council for Sustainable Development (WBCSD).

Compared with the previous year, total Scope 3 emissions declined by 24% in fiscal 2022. This change is primarily attributable to the lower production volume, which has a direct effect on the two largest Scope 3 categories, 1 "Purchased goods and services" and 12 "End-of-life treatment of sold products." Additionally, sometimes opposing, effects were attributable to a further improvement in calculation methods, an adjustment to measures taken, and the increased use of supplier-specific emissions factors. The Scope 3 category 2, "Capital goods," rose by 31% year-over-year. In the context of the spend-based calculation method in this category, this is mainly due to the sharp increase in material prices and inflation effects. In the spend-based calculation method, spend information is used for all purchases that cannot be translated into mass and multiplied with spend-based emission factors (in units of kg CO₂e/€) to get the resulting emissions. The emissions for each Scope 3 category are based on individual calculations, which are described in detail in the CDP questionnaire we completed.

Composition of Scope 3 emissions categories¹

million metric tons of CO₂ equivalents



¹ Portfolio-adjusted based on the financial control approach of the GHG Protocol; global warming potential (GWP) factors according to the IPCC's Fifth Assessment Report.

Nonrelevant emissions categories: 8 "Upstream leased assets"; 11 "Use of sold products"; 15 "Investments." Estimates indicate that these categories account for <1% of Covestro's total Scope 3 emissions. Their levels are therefore insignificant according to the definition in the GHG Protocol.

Nonapplicable emissions categories: 13 "Downstream leased assets"; 14 "Franchises." Covestro does not operate any plants that are leased to third parties and whose emissions are not already included in Scope 1 and Scope 2 emissions reporting. Moreover, Covestro does not own or operate any franchises.

Unreported emissions category: 10 "Processing of sold products." Since data could not always be obtained and there are numerous applications for Covestro's products, calculating these emissions would require disproportionate effort. In this case, Covestro refers to the WBCSD guidance, according to which a chemical company whose product portfolio contains a broad range of intermediates is not required to report Scope 3, category 10 "Processing of sold products."

The calculation of emissions categories 2 "Capital goods" and 1 "Purchased goods and services," in relation to the share that is not attributable to raw materials, is based on spend-based emissions factors of the Department of Energy & Climate Change (DECC) from the year 2014, which have been updated using inflation rates according to the German consumer price index.

² "Other categories" includes the following: 6 "Business travel"; 7 "Employee commuting"; 9 "Downstream transportation and distribution."

+ Additional information is available in the Covestro Annual Report 2022 – Climate Neutrality

Climate-related Targets

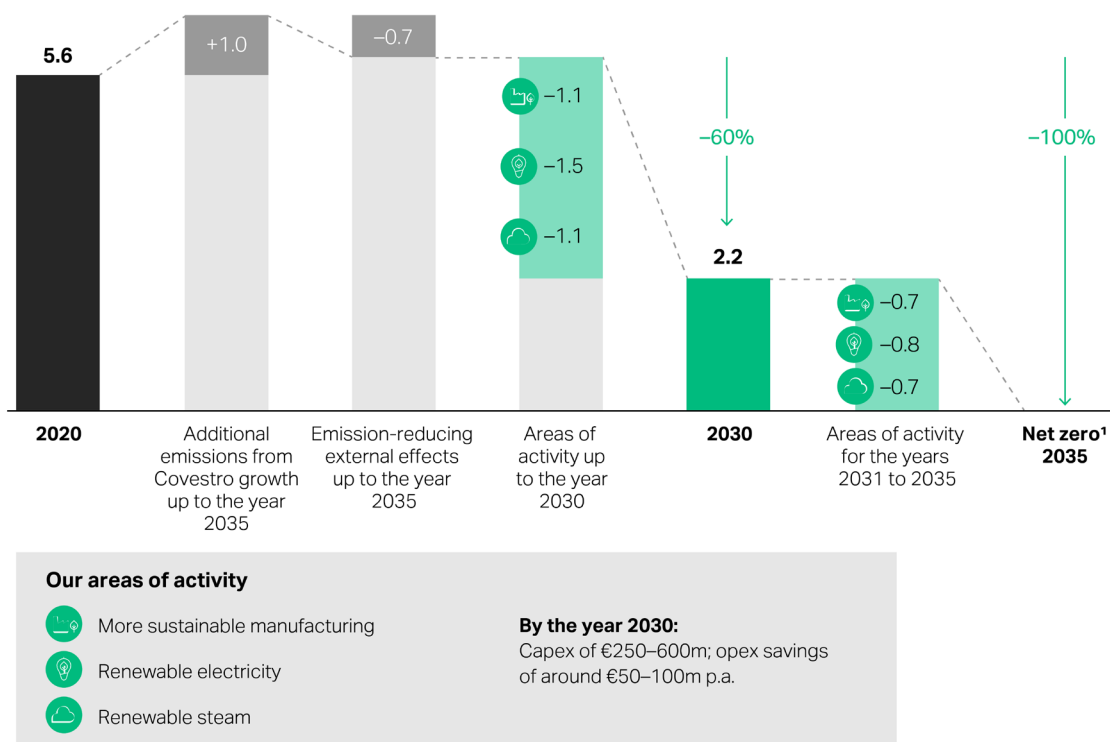
Covestro is committed to delivering on the 1.5-degree ambition of the Paris Agreement and the UN Sustainable Development Goals. Our corporate vision of becoming fully circular goes hand in hand with operating in a climate-neutral way.

Back in the year 2016, we set the sustainability goal of cutting specific GHG emissions by 50% compared to the 2005 benchmark by the year 2025. In 2021, we reached our 2025 reduction goal for specific GHG emissions by achieving a 53.9% cut ahead of plan.

In the year 2021, we updated and further enhanced our global climate targets to align our goal of reducing GHG emissions with our new corporate vision, regulatory requirements as well as stakeholder expectations. In order to develop our new targets, we applied different scenarios, analyzed different methodologies, such as for setting science-based targets and incorporated the views of our stakeholders. In order to contribute in meeting the 1.5 degree goal under the Paris Agreement ahead of the year 2050, we are determined to reach net zero Scope 1 and Scope 2 GHG emissions by the year 2035 as shown in the figure below. As an intermediate goal we plan to deliver on a 60% emissions reduction for Scope 1 and 2 emissions by 2030, compared to 2020 levels.

Action areas toward reaching the net zero goal

million metric tons of CO₂ equivalents per year; apart from the figures for the year 2020, all figures are expected values



¹ Achievement of net-zero GHG emissions is defined as a balance between anthropogenic emissions caused by the company's own production activities – Scope 1 GHG emissions – and by the provision and use of energy produced outside the company – Scope 2 GHG emissions – and anthropogenic reduction of greenhouse gases.

The implementation of the activities described in the strategy chapter, and our continuous search for measures beyond those currently in use go hand in hand with a full transformation of our production sites. We are confident that our actions put us in a strong position to become fully circular and climate-neutral. We are determined to achieve our goal of net zero Scope 1 and Scope 2 emissions by 2035.

Apart from lowering our Scope 1 and Scope 2 emissions, the reduction of our Scope 3 emissions is critical and will also be part of our roadmap to achieving full circularity in the long run. In the course of 2023, we are currently evaluating targets as well as measures for Scope 3 emission reduction and plan to communicate these by the end of 2023.

+ Additional information is available in the Covestro Annual Report 2022 – Climate Neutrality



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