



*Task Force on Climate-Related
Financial Disclosures (TCFD) Report*

2024

Bayer reports on Climate Change in accordance with the requirements of the European Sustainability Reporting Standards (ESRS) in our [Sustainability Statement in the Annual Report 2024](#). Bayer also supports the recommendations of the [Task Force on Climate-Related Financial Disclosures \(TCFD\)](#) with respect to reporting on this topic. In our report, we implement the 11 recommendations of the TCFD in the four categories of Governance, Strategy, Risk Management and Metrics & Targets.

1. Governance

Management's role

The Chairman of the Board of Management (CEO) holds direct responsibility for climate protection in his role as Chief Sustainability Officer. In keeping with their level of importance, climate-change-related topics and Bayer's climate strategy were discussed at a total of four meetings with the Board of Management, one meeting of the Supervisory Board and both meetings of the ESG Committee of the Supervisory Board in 2024.

The attainment of our Group targets for reducing greenhouse gases by 2029 is factored into the long-term compensation of the Board of Management and Bayer's LTI-entitled managerial employees. The compensation-relevant target is based on Bayer's necessary contribution to an SBTi-validated 1.5 °C scenario. Climate protection is also an integral element of annual variable compensation.

The Chairman of the Board of Management (CEO) is supported in this by the Public Affairs, Science, Sustainability & HSE Enabling Function and the sustainability departments within the divisions. The divisions handle the operational implementation of the climate protection measures at their sites with the support of the enabling functions. We have formed Group-wide working groups for the strategic and operational implementation of climate-change-related measures and a special working group to analyze various climate scenarios and their impacts on our business. In addition, the Sustainability Council that was established in 2020 advises the Board of Management in all matters relating to sustainability – including climate protection. In 2024, climate change and the related impacts on and opportunities for Bayer were discussed at three meetings of the Sustainability Council.

The Board of Management of Bayer AG holds overall responsibility for maintaining an effective risk management system. It examines the appropriateness and effectiveness of the risk management system at least once a year, as does the Supervisory Board's Audit Committee. In addition, a corresponding report is provided to the full Supervisory Board. The Bayer Assurance Committee is chaired by the Chief Financial Officer, with a second Board of Management member participating on a rotating basis. Besides ensuring that appropriate action is taken to control any substantial risks, the Bayer Assurance Committee regularly discusses and reviews the risk portfolio and the status of risk control measures. Responsibility for the identification, assessment, treatment and reporting of risks lies with the operational business units in the divisions and enabling functions.

Board's oversight

Bayer AG is subject to German stock corporation law and therefore has a dual governance system consisting of the Board of Management and the Supervisory Board, which manage the company based on a transparent strategy that is geared toward its long-term success and complies with applicable law and ethical standards. The Supervisory Board oversees and monitors the Board of Management. Since 2022, the Supervisory Board has had its own ESG Committee, comprising the Chairman of the Supervisory Board and seven further members of the Supervisory Board to oversee and advise the Board of Management on matters relating to sustainability.

The Board of Management of Bayer AG holds overall responsibility for maintaining an effective risk management system. It examines the appropriateness and effectiveness of the risk management system at least once a year, as does the Supervisory Board's Audit Committee. In addition, a corresponding report is provided to the full Supervisory Board.

In our [Annual Report](#), we report in detail on the main elements of the Bayer Group's corporate governance structures and conformity with the recommendations of the German Corporate Governance Code, relevant corporate governance practices, the composition and procedures of the Board of Management, the Supervisory Board and their committees, and also on compensation in the Compensation Report along with the objectives to be defined and the underlying concepts.

For more information:

// [Bayer Annual Report 2024](#) – A.3.2 Opportunity and Risk Report

// [Bayer Sustainability Statement in the Annual Report 2024](#) – General Information on the Sustainability Statement

2. Strategy

2.1 Strategy, Identification and impacts

Climate change affects us all and is one of the greatest challenges that humankind will face in the future. Bayer considers climate protection and the related reduction of greenhouse gas emissions to be a top priority. We support the Paris Agreement and the objective of limiting global warming to 1.5 °C relative to the pre-industrial level. The [Science Based Targets initiative](#) (SBTi) has validated our target and confirms our contribution to fulfilling the Paris Agreement. We anticipate that our business areas of healthcare and agriculture will on the one hand be impacted by climate change, but on the other will also be part of the solution. In our Sustainability Statement in the Annual Report 2024 we report on the material Environmental sustainability matters of Climate change:

- // Physical climate risk: disruption of the value chain and production processes due to extreme weather events and climate-related natural disasters caused or exacerbated by climate change
- // Physical climate risk: decline in demand and associated losses of sales for certain products because the current product range is not fully aligned to the future requirements resulting from the effects of climate change (such as shifts in cultivation regions for certain plants and shifts in demands on products)
- // Transitory climate risk: capital expenditure requirement for adaptation of product processes to our reduction targets depending on regulations, legislation or availabilities, e.g. as regards the emission of greenhouse gases during production processes (such as emissions trading systems)

Bayer's updated climate protection strategy is directly related to our double materiality assessment and is based on our scenario analysis. At the core of Bayer's climate strategy is the Transition and Transformation Plan, which was published for the first time in 2024 and represents an update of our climate program from 2020.

Our climate strategy comprises two subject areas – reduction of greenhouse gas emissions and climate change adaptation, with the latter including the issue of access. Both areas are incorporated into our transition and transformation strategies:

Transition: To mitigate climate change, we are pursuing the goal of achieving net zero greenhouse gas emissions (net zero target) by 2050, including the entire value chain. This means an at least 90% reduction in Scope 1, 2 and 3 greenhouse gas emissions compared with the base year 2019. The remaining 10% greenhouse gas emissions should be offset by long-term emission credits. In our Transition and Transformation

Plan, we describe reduction levers, the policy for climate protection certificates, cooperation with special interest groups and the resilience of our value chain.

Transformation: Transformation encompasses market potentials as a result of climate change adaptation that we see in the areas of healthcare and agriculture, as well as access to our products and services, and a socially just transition. At the same time, we want to help reduce greenhouse gas emissions from agriculture in the long term with innovative solutions.

Through our Transition and Transformation Plan, we support the Paris Agreement and the objective of limiting global warming to 1.5 °C compared with the preindustrial level.

For more information:

// [Bayer Sustainability Statement in the Annual Report 2024 – E1 Climate Change](#)

// [Bayer 2024 Impact Report – Chapter 7.2 Climate](#)

// [Bayer Transition and Transformation Plan](#)

2.2 Climate scenarios

For a number of years now, we have conducted a climate-based scenario analysis that encompasses elements of a resilience analysis and with which we analyze the impacts, risks and opportunities of climate change for our entire business from various perspectives. In our analysis we focus on the impacts on our businesses, especially agriculture. This enables us to assess the findings relative to our company and integrate them into our strategy, enterprise risk management (ERM) system and actions. We constantly work to adapt our products, services and production to the impacts of climate change. This also includes a consideration of the short-, medium- and long-term future. We do not currently see any restrictions on the ability to rededicate, modernize or close existing assets, shift product and service portfolios, and retrain workers. Indeed, we see possible opportunities for our products and services when they are used by our customers as part of climate adaptation strategies, such as in the seed business. We continued and expanded our scenario analysis in 2024. The results and focal points of the analyses are directly integrated into our business strategy.

In the climate-related scenario analysis, which also covers the resilience of our business fields, we go beyond the 10-year horizon of our ERM system and the horizon of the double materiality assessment, and use the following time horizons:

// Short-term: from today through 2027

// Medium-term: from 2028 through 2035

// Long-term: from 2036 through 2050

We use the scenarios to understand the impacts of climate change on our business and to identify actions for mitigating climate-related risks and leveraging opportunities. This is how we also measure the future viability of our business fields.

Our scenario analysis, which encompasses elements of a resilience analysis, has a twofold focus:

// Overarching opportunity and risk assessment for the Bayer Group and its individual business areas, including the upstream, downstream and our own value chains

// In the Crop Science Division, we further developed an agricultural climate model to analyze the impacts on agricultural productivity in relation to the different scenarios. A variety of projects and workshops are additionally carried out with the individual business areas.

To conduct the scenario analysis, we deployed a cross-functional and cross-divisional team to evaluate the possible impacts of climate change based on two scenarios. First of all, the scenarios were described, the most important drivers were then established, and, finally, actions were defined to reduce risks and realize opportunities. Examples here include the implementation of our net zero strategy and the focus on our concept of regenerative agriculture.

We have based our scenario descriptions on Assessment Report 6 of the Intergovernmental Panel on Climate Change (IPCC) and supplemented them with further sources relevant to our business areas. The basis comprises the optimistic climate change scenario envisaging warming of below 1.5 °C – the Green Road SSP1-1.9, which equates to the fulfillment of the climate goals of the Paris Agreement (temperature increase of 1.4 °C by 2100 compared with the preindustrial age) – and a scenario that reflects current global behavior – the Rocky Road SSP3-7.0 (temperature increase of 3.6 °C).



Green Road (SSP1-1.9)

- // The Green Road scenario assumes a rise in average global temperature compared with the preindustrial age of 1.6 °C by between 2041 and 2060. Between 2081 and 2100, the temperature is likely to have risen by 1.4 °C compared with the preindustrial age.
- // This scenario is marked by the rapid implementation of ambitious and globally coordinated climate-related laws and rules that can also include transformational requirements and new regulations for companies in the short term. The rapid reduction in greenhouse gas emissions leads to less severe weather- and climate-related effects.



Rocky Road (SSP3-7.0)

- // The Rocky Road scenario assumes the rise in average global temperature compared with the preindustrial age to be around 2.1 °C by between 2041 and 2060, and probably 3.6 °C by between 2081 and 2100.
- // In this scenario, we expect less ambitious laws and provisions that vary widely from one region to another. That leads to a slower pace of emissions reduction and thus more intensive weather- and climate-related changes in all regions of the world. The varying levels of ambition also lead to additional trade barriers that can be manifested in measures such as a Carbon Border Adjustment Mechanism (CBAM).

In 2024, we also further developed our own agricultural climate model to analyze impacts on agricultural productivity in relation to the different scenarios. At the same time, we can use this climate model for various other analyses; for example, as a useful extension of specific analyses on the impacts and opportunities of climate change as regards our business activities in agriculture.

For more information:

- // [Bayer Sustainability Statement in the Annual Report 2024 – E1 Climate Change](#)
- // [Bayer Transition and Transformation Plan](#)

2.3 Climate impact drivers

The results and strategic implications of the climate-related scenario analysis are directly accounted for in our climate strategy and thus in our Transition and Transformation Plan. Based on the scenario description, we have identified 10 climate impact drivers of materiality to enable us to analyze the impacts regulatory and physical changes will have on our business in more detail. The transitory drivers are regulatory requirements, CO₂ prices/taxes and border adjustment, agricultural innovation and cultivation methods, commodity prices, end-consumers and customers, and food security. As regards the physical climate drivers, we take into account acute extreme weather events and three chronic physical drivers, namely the water cycle, diseases and temperature changes.

Separately, we assess the opportunities and risks associated with the 10 climate impact drivers shown in the graphic – in each case based on the various time horizons and on the Green Road and Rocky Road scenarios.

Below, we provide insight into the assessments of the individual climate impact drivers.

Impact of climate-related matters

Transitory climate impact drivers: Based on the Paris Agreement, the most important countries and regions in which we operate have committed to limiting global warming by reducing their greenhouse gas emissions. Through our strategy for decarbonization, with a focus on reducing greenhouse gas emissions on the pathway to a 1.5 °C scenario, we are reducing the risk of additional costs being caused by the expected regulations. At the same time, the rules, innovation and implementation in agriculture are of particular importance. We continuously analyze the further impacts of regulatory changes on our business and integrate them into our business and planning. Depending on the various scenarios, our customers and value chains will place different demands on our products. Carbon prices not only affect the cost structure of our value chain, but could also impact demand for biomass or biofuels. We also analyzed the issues of raw material prices and food security, as high uncertainty is expected here, particularly in a Rocky Road scenario.

Climate Impact Drivers		Short term (2024–2027)		Medium term (2028–2035)		Long term (2035–2050)	
		Risk	Opportunity	Risk	Opportunity	Risk	Opportunity
Transition impact drivers							
Laws, regulations, policies		●	●	●	●	●	●
		●	●	●	●	●	●
Carbon taxation/pricing, carbon border adjustment and offsetting		●	●	●	●	●	●
		●	●	●	●	●	●
Agricultural innovation and practices		●	●	●	●	●	●
		●	●	●	●	●	●
Commodity prices		●	●	●	●	●	●
		●	●	●	●	●	●
End customer/customer/market		●	●	●	●	●	●
		●	●	●	●	●	●
Food security		●	●	●	●	●	●
		●	●	●	●	●	●
Acute physical impact drivers							
Extreme weather events		●	●	●	●	●	●
		●	●	●	●	●	●
Chronic physical impact drivers							
Permanent water cycle		●	●	●	●	●	●
		●	●	●	●	●	●
Diseases		●	●	●	●	●	●
		●	●	●	●	●	●
Temperature		●	●	●	●	●	●
		●	●	●	●	●	●

The Green Road (SSP1-1.9) = The Rocky Road (SSP3-7.0) = Relevance = low high

Acute physical climate impact drivers: All climate models anticipate an increase in extreme weather conditions (such as drought, heavy rains and storms) that present an elevated risk of crop losses and therefore also pose risks for the agricultural value chain as a whole. In addition to risks, however, climate change can also create opportunities for our business. Our product range and innovative capability – particularly in the agricultural value chain – will create a foundation for leveraging new options and sales opportunities in the future against the background of climate change. As a seed producer, we already offer plants with increased resistance to extreme weather conditions. That includes short-stature corn. Through breeding, we have succeeded in developing seed hybrids that enable the growth of shorter corn plants that have the potential to

not bend or break (agronomists call this root and stalk lodging) as easily as corn plants of regular height in the presence of strong winds or heavy rain. Losses in the United States due to bent (lodged) plants amount to between 5% and 25% a year, depending on the severity of weather events. We also enable farmers to react better and more quickly to extreme weather conditions with our FieldView™ digital farming platform.

Chronic physical climate impact drivers: The long-term natural and physical effects of climate change will have a particular impact on the permanent water cycle (for example through a transition to a wetter or drier climate or a delay in the monsoon season), the spread of diseases and insect pests, and further coupling effects of temperature changes. These effects will be particularly relevant for our agricultural business. We develop strategies to help farmers increase their resilience against the effects of climate change. At the same time, we want to help farmers reduce their own greenhouse gas emissions and cultivate healthy crops. As there are no uniform solutions in agriculture, farmers need numerous options from which they can select the most suitable for their fields and the prevailing local conditions. In addition, health risks such as cardiovascular disease can also intensify due to hotter summer months or more frequent heatwaves. This could create increased demand for products for cardiovascular disease or nutritional supplements.

For more information:

// [Bayer Sustainability Statement in the Annual Report 2024 – E1 Climate Change](#)

// [Bayer Transition and Transformation Plan](#)

Integration into the business strategy

The results of the scenario analysis are regularly reviewed within the scope of our ERM system. Mitigation measures are established in the respective divisions or enabling functions. Our scenario analysis did not identify any business activities that are incompatible with the transition to a climate-neutral economy.

With regard to climate change, we have both positive and negative impacts, risks and opportunities. Global agriculture and food systems in particular are confronted with major challenges, such as climate change (particularly through adaptation), water scarcity and population growth. We promote a concept of regenerative agriculture (mainly downstream in our value chain). For us, regenerative agriculture is an outcome-based production model based on two key building blocks: productivity, which focuses on helping farms to produce more with less, and regeneration, which focuses on delivering a positive impact on nature. Key outcomes we strive for are yield increase and improved social and economic well-being of farmers and communities, and positive impact on nature, which can be achieved, for instance, by improving soil health, reducing on-field greenhouse gas emissions, and increasing carbon capture to mitigate climate change. The products and services we offer help farmers to optimally utilize their farmland, and thus contribute to food security and better adapt local agriculture to the respective environmental conditions going forward. We are only at the beginning of our journey toward regenerative agriculture. We also realize there is not one single solution for every farm, but instead a combination of different solutions that deliver a regenerative agriculture system and its benefits. Some of the innovations and solutions we have developed have the potential to advance the future of regenerative farming (e.g. short-stature corn, hybrid wheat, direct seeded rice).

In the area of climate change, we face both numerous risks and opportunities that could impact our operating activities. There are acute and chronic physical and transitory risks that could lead to a reduction in demand and corresponding sales declines for certain products in case the current product portfolio does not meet future customer requirements related to the effects of climate change (e.g. shift in production zones, altered product requirements). However, these challenges also result in opportunities. It is possible that extreme weather events and climate-related natural disasters could result in higher demand for products that are particularly suited to climate change adaptation in agriculture. The perception of the effects of climate change (e.g. extreme weather conditions, low water levels, rising temperatures) can also accelerate the development of new business models that help to reduce greenhouse gas emissions (including carbon farming, low-carbon products and products with low global warming potential).

There is also the opportunity of increased demand for products that help to cope with the negative effects of climate change, particularly in the prescription and nonprescription medicines and nutritional supplements of our Pharmaceuticals and Consumer Health divisions. As regards climate change adaptation, acute physical risks are caused by extreme weather events and climate-related natural disasters that could disrupt production processes and business practices along the entire value chain.

In the area of greenhouse gas emissions reduction measures, there are transitory risks necessitating significant investment to adapt production processes to the envisaged ambition level and ensure compliance with possible new regulations, laws and guidelines, such as those related to the emission of greenhouse gases during production processes as part of emissions trading systems. In connection with our reduction targets for greenhouse gas emissions, we assessed and budgeted for our capital expenditure requirement through 2029.

Beyond our direct sphere of influence, there are potential environmental impacts due to greenhouse gas emissions along the value chain, mainly through industrial agriculture, including changed land use, livestock farming, biofuels and food losses. As part of the value chain, we selectively provide inputs and thus contribute partly to greenhouse gas emissions reduction within the downstream value chain. Reducing these greenhouse gas emissions and improving soil health through carbon capture present opportunities for new activities in the area of regenerative agriculture.

As regards climate change adaptation, acute physical risks are caused by extreme weather events and climate-related natural disasters that could disrupt production processes and business practices along the entire value chain. We cooperate with our suppliers, particularly in the upstream value chain, and take out insurance coverage for our own production sites, and review our activities. We regularly review our actions to ensure business capability and production.

For more information:

// [Bayer Sustainability Statement in the Annual Report 2024](#) – E1 Climate Change

// [Bayer Transition and Transformation Plan](#)

2.4 Next steps

As data models and insights into climate change are constantly evolving, we will continue to expand and refine our scenario description and analysis. At the same time, we are enhancing our analytical capabilities and expanding our climate models e.g. in order to better understand how various climate zones are changing. By doing this, we aim to be in a position to describe future challenges and opportunities as accurately as possible to derive short-, medium- and long-term mitigation measures. Findings from these analyses will play a bigger role in our strategic, portfolio and operational processes.

For more information:

// [Bayer Sustainability Statement in the Annual Report 2024](#) – E1 Climate Change

2.5 Targets – roadmap to net zero

Through our Transition and Transformation Plan, we support the Paris Agreement and the objective of limiting global warming to 1.5 °C compared with the preindustrial level.

We report in detail about the progress of our transition towards net zero in our Sustainability Statement in the Annual Report and in our Transition and Transformation Plan. Therefore, this is just a high level summary.

Targets for 2024

In 2020, we had set targets for 2024. We aimed

- // to achieve a 20% reduction of our combined Scope 1 and 2 greenhouse gas emissions (comprises direct emissions [Scope 1] and indirect [Scope 2, market-based] greenhouse gas emissions from Bayer sites with an annual energy consumption exceeding 1.5 terajoules) compared to the base year 2019; and
- // to reduce our Scope 3 greenhouse gas emissions by 6% (based on the five categories of Scope 3 greenhouse gas emissions according to the GHG Protocol that are relevant for us: (3.1) purchased goods and services, (3.2) capital goods, (3.3) fuel- and energy-related activities, (3.4) upstream transportation and distribution and (3.6) business travel) compared to the base year 2019.

Compared with the base year 2019, we reduced our combined Scope 1 and Scope 2 greenhouse gas emissions by 21.3% and our target-related Scope 3 greenhouse gas emissions by 12.7% in 2024.

Targets for 2029

In 2020, we set ourselves a target of achieving a 42% reduction in absolute combined Scope 1 and 2 greenhouse gas emissions (comprises direct emissions [Scope 1] and indirect [Scope 2, market-based] greenhouse gas emissions from Bayer sites with an annual energy consumption exceeding 1.5 terajoules) compared with the base year 2019 by the year 2029.

In 2020, we also set ourselves a target of achieving a 12.3% reduction in absolute Scope 3 greenhouse gas emissions compared with the base year 2019 by the year 2029. The reduction is based on the five categories of Scope 3 greenhouse gas emissions according to the GHG Protocol that are relevant for us: (3.1) purchased goods and services, (3.2) capital goods, (3.3) fuel- and energy-related activities, (3.4) upstream transportation and distribution and (3.6) business travel.

In the future we want to achieve a 25% reduction in Scope 3 greenhouse gas emissions by 2029 (compared to the base year 2019). This updated target for reducing Scope 3 greenhouse gas emissions was validated by the SBTi at the end of 2024. This reduction will be based on a different number of relevant Scope 3 categories including the upstream and downstream value chain, thus going beyond the five categories we were using in the last years. We will publish more details on this over the course of 2025.

Net zero target 2050

Our goal is to achieve net zero greenhouse gas emissions including the entire value chain by 2050. This corresponds to a 90% reduction in absolute Scope 1, 2 and 3 greenhouse gas emissions compared with the base year 2019 (total Scope 1, Scope 2 and Scope 3 greenhouse gas emissions; comprises direct [Scope 1] and indirect [Scope 2, market-based] greenhouse gas emissions from Bayer sites with an annual energy consumption exceeding 1.5 terajoules; Scope 3 includes all Scope 3 categories defined in the GHG Protocol). We intend to offset the remaining greenhouse gas emissions (10%) through long-term carbon credits (the neutralization of the remaining emissions will be carried out in accordance with the standards of the Science Based Targets initiative [SBTi]). We will offset the residual emissions through certificates with long-term carbon capture. This target was validated in 2024 by the SBTi organization and is in line with the UN Sustainable Development Goals, the Paris Agreement to limit warming to 1.5 °C, and the Business Ambition for 1.5 °C of the UN Global Compact Initiative.

For more information:

// [Bayer Sustainability Statement in the Annual Report 2024](#) – E1 Climate Change

// [Bayer 2024 Impact Report](#) – Chapter 7.2 Climate

3. Risk Management

As an international life science enterprise, we are exposed to a wide range of internal and external developments and events that could significantly impact the achievement of our financial and nonfinancial targets. Opportunity and risk management is therefore an integral part of corporate management at Bayer. We regard opportunities as positive deviations from projected or target values for potential future developments, while we see risks as negative deviations from these. We augment our risk definition process by also taking into account any potential adverse effects that our business operations could have on people and/or the environment.

We have implemented a holistic and integrated risk management system designed to ensure the continued existence and future target attainment of the Group through the early identification, assessment and treatment of risks. Our risk management system is oriented towards internationally recognized standards and principles such as the ISO 31000 risk management standard of the International Organization for Standardization and is defined and implemented with the help of binding corporate policies.

Responsibility for the identification, assessment, treatment and reporting of risks lies with the operational business units in the divisions and enabling functions.

In 2024, we looked at the risks and opportunities stemming from the effects of climate change from various perspectives to evaluate them even better in relation to our company and integrate them into our strategy and measures. Climate-related risks are already accounted for in our Group-wide enterprise risk management (ERM) system.

In addition, we carried out a double materiality assessment in line with the requirements of the European Sustainability Reporting Standards (ESRS) defining climate change as a material environmental matter. Financial risks and opportunities were identified as well as potential and actual positive and negative impacts. See more on the results of our double materiality assessment in our Sustainability Statement in the Annual Report 2024 – General Information on the Sustainability Statement.

For more information:

// [Bayer Sustainability Statement in the Annual Report 2024 – General Information on the Sustainability Statement](#)

4. Metrics and Targets

4.1 Climate reporting

We have committed to transparently communicating our climate targets and progress, as well as the impact that climate change has on Bayer.

Through our longstanding and continuous participation in [CDP](#), we disclose our climate-related activities and progress with a high degree of detail.

4.2 Measures/actions taken to achieve our climate targets

We have developed a net-zero roadmap to achieve our ambitious climate targets. This roadmap comprises various measures in the areas of energy and efficiency, governance and certificates (credits/offsets). To implement our long-term climate strategy, we focus on reducing the greenhouse gas emissions associated with our operations and on strengthening the resilience of our business areas.

Our most important framework for the management principles we utilize to make decisions in the area of climate mitigation and adaptation is our Transition and Transformation Plan. This plan is a central element of our overall strategy, and establishes targets and actions for the transition to low-carbon business activities, including the reduction of our greenhouse gas emissions in line with the Paris Agreement with the objective of limiting global warming to 1.5 °C compared to the pre-industrial value. For this reason, we do not report on any other concepts in the area of climate protection.

Reduction of greenhouse gas emissions for Scope 1 and Scope 2 through 2029

The first step we have taken to attain our ambitious climate target of net zero greenhouse gas emissions in 2050 is the development of a roadmap through 2029 that comprises effective actions to reduce our greenhouse gas emissions. The most important actions in our roadmap through 2029 to reduce total Scope 1 and Scope 2 greenhouse gas emissions comprise the procurement of electricity from renewable energy sources, the improvement of energy efficiency in our production plants, facilities and buildings, the decarbonization of our sites and the conversion of our vehicle fleet to electromobility.

Procurement of electricity from renewable energy sources

We are currently converting our power supply and plan to derive all of our externally procured electricity from renewable sources by 2029. Here we take into account specific criteria such as additionality and geographic proximity to our sites. We currently already procure 39.5% of our total purchased electricity from renewable energy sources. We expect to achieve a further 17% reduction in our total Scope 1 and Scope 2 greenhouse gas emissions by 2029 (compared with the base year 2019) by converting our electricity procurement to renewable energy sources. This measure encompasses the global procurement of electricity from renewable sources to reduce our dependency on fossil fuels and increase the sustainability of our energy supply. We plan to transition completely to renewable electricity if regulatory and local circumstances permit this. This measure is scheduled to be fully completed by 2029. We assume we will purchase more electricity in the future due to the electrification of various processes and other actions.

We utilize various types of electricity procurement from renewable energy sources, depending on local conditions and legal requirements. In 2023, for example, we signed a long-term, structured renewable energy credit (REC) purchase agreement with Cat Creek Energy. Under the agreement, Cat Creek Energy will build several plants to produce power from renewable energies, as well as energy storage facilities, in the US state of Idaho. The agreement should enable energy from renewable sources to provide 40% of Bayer's global and 60% of Bayer's US procured power. According to the agreement, full capacity is expected to be reached during 2028. In 2024, we concluded agreements for electricity from renewable energy sources for Bayer's German sites in Leverkusen, Dormagen, Monheim, Wuppertal, Darmstadt, Weimar, Bitterfeld, Bergkamen and Berlin. By 2029, some 300 GWh of wind and/or solar power should be supplied here from

German energy parks. Optimization of energy efficiency in our facilities and buildings to reduce our greenhouse gas emissions, we plan to drive forward our energy efficiency and process optimization by 2029. The actions involve increasing the energy efficiency of our plants and buildings through process innovations, efficient technologies and optimized energy management systems. Certifications according to the international standards ISO 14001 (environmental management) and ISO 50001 (energy management) help to identify energy savings potential both in existing production processes and in the development of new production processes and the conversion of existing ones. These certifications enable us to manage and reduce energy consumption at our production sites. Each year, various measures are implemented at many of our sites. We expect a further 2% reduction in our Scope 1 and Scope 2 greenhouse gas emissions by 2029. The implementation of the measures depends on local circumstances, as well as technological developments. Prior to operational implementation, projects are subjected to a compulsory environmental assessment if they have a planned capital expenditure volume exceeding €10 million. Emissions reduction and efficiency measures are integral to these assessments. In 2024, we invested in heating, ventilation and air conditioning technology at the sites. We currently plan further capital expenditures of approximately €200 million in our plants and buildings to attain our climate targets in the coming years through 2029. This spending is accounted for in the capital expenditure budgets of the divisions. Operating expenditures related to energy efficiency are not being separately pursued.

Emissions reduction at our sites through the purchase of energy for heating and cooling

To achieve our ambitious climate target of net zero greenhouse gas emissions in 2050, we must also reduce emissions at our sites from utility services, particularly for heating and cooling. By 2029, we want to conclude individual agreements at various sites to procure low-emission utility services or those based on renewable energies. This measure is based on the use of climate-neutral technologies, including geothermal energy and greenhouse gas emission-free steam production. Implementation of this measure is scheduled to be fully completed by 2050. We expect the future measures to reduce total Scope 1 and Scope 2 greenhouse gas emissions by a further 2% (compared with the base year 2019). The implementation of the measures depends on local circumstances, as well as technological developments.

We are transitioning to energy from renewable sources that for the most part is not associated with additional costs. Where the purchase of energy from renewable sources is not possible in certain cases, additional costs could result from offsetting through green tariffs or the purchase of certificates.

Conversion of our vehicle fleet to electromobility

To further reduce our greenhouse gas emissions, we want to convert our vehicle fleet to electromobility by 2030 wherever possible. This affects about 23,000 vehicles worldwide. To validate our activities according to the criteria, we have joined the EV100 initiative of the Climate Group. So far, we have begun transitioning to electromobility in 50 countries (including Germany) that account for about 86% of our vehicle fleet. The proportion of hybrid and electric vehicles in our fleet is approximately 18%. The conversion will make an approximately 1% contribution to the reduction of our Scope 1 greenhouse gas emissions. We do not expect a significant impact on capital and operating expenditures due to the conversion of our vehicle fleet. The implementation of the measures depends on local circumstances (including availability of suitable vehicles and charging infrastructure), as well as technological developments.

Complementary climate protection certificates

We will offset the remaining greenhouse gas emissions from our own operational processes (Scope 1 and Scope 2) by 2030 by purchasing certificates from verified climate protection projects. The projects with which we aim to generate additional value toward global climate targets need to have a connection to our business. We currently mainly purchase certificates from projects focused on forest conservation and reforestation. We expect the latter to enable long-term CO₂ storage. In our purchasing activities, we have established specific criteria for procuring certificates from climate protection projects. In this process, we focus on nature-based climate solutions, preferably concerning forest conservation and agriculture projects. We will also invest in innovative projects to promote the development of voluntary emissions trading. The projects are implemented to offset our own emissions, and have a global reach. The most important factors in the procurement of climate protection certificates are the contribution they make to climate protection and the additionality of the supported project. The implementation of the measures depends on local circumstances, as well as the quality and availability of the certificates.

As protecting forests is one of the most important measures in terms of climate protection and conservation of biodiversity, we are a participant in the LEAF (Lowering Emissions by Accelerating Forest Finance) coalition. LEAF has collected more than €1.4 billion since 2021 to initiate the biggest public-private effort to protect the rainforests. We advocate enforcement of the corresponding laws to protect the Amazon rainforest. This also includes driving forward sustainable agriculture in Brazil to prevent further deforestation. Certificates from activities undertaken in connection with LEAF will be part of our certificate portfolio for the first time in 2025.

Reduction of greenhouse gas emissions for Scope 3 through 2029

Our goal is to reduce our Scope 3 greenhouse gas emissions in the value chain by 2029. Our roadmap for Scope 3 shows the underlying actions.

Cooperation with and selection of suppliers

To attain our objectives, we are intensifying our cooperation with suppliers, particularly as regards the transition to the use of renewable energies. This is not a one-off measure but instead takes place on an ongoing basis. We therefore constantly strive to increase transparency concerning the carbon footprint of the products we purchase within the value chain and in our reporting on Scope 3 greenhouse gas emissions. Our current assessment shows that the climate protection performance of our suppliers is still insufficient to attain our long-term targets for reducing Scope 3 greenhouse gas emissions. Of our 100 most important suppliers, who were responsible for 38% of Scope 3 greenhouse gas emissions in our upstream supply chain ((3.1) purchased goods and services, (3.2) capital goods and (3.4) upstream transportation and distribution) in 2024, 22 suppliers set short-term SBTi-reviewed targets. At the same time, we established an internal climate-related supplier segmentation that we use to track the individual activities of our suppliers. We strive to establish partnerships with suppliers who commit to reducing greenhouse gas emissions and to decarbonization, and aim to integrate internal CO₂ pricing into decision-making processes in the future. This measure should take place without a significant increase in our specific operating expenditures.

As the ability of one company on its own to reduce greenhouse gas emissions along the value chain is only limited, we have joined together with other companies within various initiatives. Together we aim to record greenhouse gas emissions and climate risks and develop reduction targets and strategies. One of the ways we do this is within the scope of the Together for Sustainability (TfS) initiative of the chemical industry. The goal is to standardize the calculation of a product carbon footprint (PCF) for the chemical industry. At the same time, an allocation approach is being developed for the product carbon footprint within the value chain. The plan is to share results from the TfS working group with the Partnership for Carbon Transparency (PACT) of the World Business Council for Sustainable Development (WBCSD). PACT develops climate approaches across industries. As a member of the WBCSD, we are working on suitable measures there as well. We also utilize the working group of the Pharmaceutical Supply Chain Initiative (PSCI) and participate in the Energize program as part of the pharmaceutical industry to discuss measures to reduce Scope 3 greenhouse gas emissions and help our suppliers use more renewable energy and put in place better measures. We expect to reduce more than 4.2% of our Scope 3 greenhouse gas emissions through this measure by 2029 (compared with the base year 2019). The success of this measure depends only indirectly on us, with the general regulatory and climate-specific transformation playing a more significant role here.

Procurement of electricity from renewable sources by our suppliers

We expect the transition to electricity from renewable sources to be a crucial lever for decarbonization both in our own operations and in those of our suppliers. For this reason, our suppliers should strive to procure 100% of their electricity from renewable sources by 2030 and continuously improve energy efficiency. Compliance with the procurement requirements spelled out in our Supplier Code of Conduct is especially important. These are based on the criteria of RE100 (a global initiative that brings together companies that have committed to cover their entire electricity demand from renewable sources). We will support our suppliers in this transition, especially within the context of our meetings with suppliers. In our supplier segmentation, we also integrate the share of electricity from renewable sources that our suppliers use. The implementation of the measures depends on local circumstances, as well as technological developments. We expect to reduce a further 2.6% of our Scope 3 greenhouse gas emissions through this measure by 2029 (compared with the base year 2019).

We are working together with our suppliers and partners on a number of solutions. In 2024, we switched, for example, from the supply of a standard solution by a supplier to a green alternative. This alternative utilizes 100% green electricity for the electrolysis of an important process step. This reduces CO₂ emissions by about 2,500 metric tons annually and does not result in any additional costs.

Use of electricity from renewable energies in warehousing and freight transport

Our warehousing and logistics suppliers play a major part in decarbonizing our supply chain. We engage in discussions and want to focus more intensively on the use of renewable energies and the electrification of their vehicle fleets. At the same time, we want to further optimize logistics and make greater use of digital technologies. As a member of the EcoTransIT World Initiative, we implemented the EcoTransIT system in 2023 to calculate and standardize transport-related greenhouse gas emissions worldwide. We work continuously to develop logistics concepts to reduce the associated greenhouse gas emissions. Here we are planning a reduction in air transport, as well as more logistics concepts involving rail and waterway transport that can therefore be operated with renewable energies. Road freight accounted for 98.1% of our transportation routes in 2024, while water and air freight each accounted for 0.9% and rail freight for 0.1%. The implementation of the measures depends on local circumstances, as well as technological developments. We expect to reduce a further 0.5% of our Scope 3 greenhouse gas emissions through this measure by 2029 (compared with the base year 2019). Furthermore, this measure will continue to be implemented through 2050.

Business travel and packaging

We want to review the greenhouse gas emissions from business travel, as well as greenhouse gas emissions associated with packaging, and impact them through various measures. Together with selected suppliers, we are investing in low-carbon packaging materials and services to accelerate decarbonization. In 2024, we became the first healthcare company to introduce a one-material blister pack made of polyethylene terephthalate (APET) for Aleve™. This reduces the carbon footprint of this packaging by 38% and has further positive environmental characteristics (including with respect to recycling) through the nonuse of polyvinyl chloride (PVC). This is accompanied by the transition from materials of fossil origin to plant-based materials.

We also want to reduce greenhouse gas emissions from business travel. Actions here include increased use of virtual meetings and a special information page for employees on the connection between travel and sustainability. The implementation of these measures depends on local circumstances, as well as further technological developments. We expect to be able to reduce a further 0.5% of our Scope 3 greenhouse gas emissions through these measures by 2029 (compared with the base year 2019). This package of measures will be continuously implemented even beyond 2029 and through 2050.

Reduction of greenhouse gas emissions for Scope 1, 2 and 3 through 2050

The attainment of our ambitious climate target of net zero greenhouse gas emissions in 2050 depends on numerous framework conditions. We have developed a roadmap on how we can reach the net zero target by 2050 or earlier.

Innovative and available technologies

The availability of renewable energies and innovative technologies on a large scale and at competitive costs, such as carbon capture, storage and utilization or the use of hydrogen to produce energy, is important for

our long-term greenhouse gas emissions reduction. We monitor the availability continuously, and implementation in our plants and buildings depends on the progress and local circumstances. This is not a one-off measure but instead takes place continuously.

New products

We work on innovations in our products to continue to reduce the emissions associated with them in the future, for example by developing new synthesis routes.

One example is the research and development (R&D) of new radiology products, for which we have begun to introduce sustainability criteria according to a sustainability-by-design approach. We would like to examine the sustainability of future radiology products in various phases of R&D based on sustainability checkpoints. This is not a one-off measure but rather takes place continuously to introduce new products and innovations.

Residual and unavoidable emissions

We expect that there will likely still be some residual, unavoidable greenhouse gas emissions in our value chain in 2050. We plan to offset these emissions through long-term emissions reduction certificates.

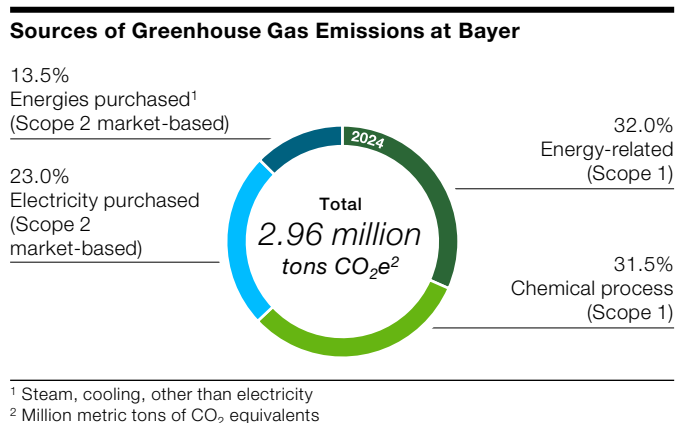
For more information:

// [Bayer Sustainability Statement in the Annual Report 2024 – E1 Climate Change](#)

// [Bayer Transition and Transformation Plan](#)

4.3 Metrics

At our company, direct greenhouse gas emissions (Scope 1) primarily result from the combustion of primary energy sources (mostly gas and oil) to produce electricity and thermal energy. Greenhouse gas emissions are also generated by our vehicle fleet and in the extraction and processing of raw materials (32.0%). Another portion of greenhouse gas emissions is attributable to chemical processes (31.5%). The purchase of electrical energy and of further energies, primarily for heating and cooling, accounts for the biggest shares of Scope 2 greenhouse gas emissions (market-based), at 23.0% and 13.5% respectively.



In accordance with the SBTi, we take into account the following five Scope 3 categories according to the GHG Protocol for reporting on the attainment of our reduction target for Scope 3 greenhouse gas emissions: (3.1) purchased goods and services, (3.2) capital goods, (3.3) fuel- and energy-related activities, (3.4) upstream transportation and distribution and (3.6) business travel. In addition to this reporting, we take into account a total of eight Scope 3 categories according to the GHG Protocol in the table “Greenhouse Gas Emissions According to Scope 1, 2 and 3 Including Related Targets” (see below) for reporting according to ESRS and for further observation and the future enhancement of our methodology for calculating Scope 3 greenhouse gas emissions: (3.1) purchased goods and services, (3.2) capital goods, (3.3) fuel- and energy-related activities, (3.4) upstream transportation and distribution, (3.5) waste generated in operations, (3.6) business travel, (3.7) employee commuting and (3.12) end-of-life treatment of sold products. The remaining Scope 3 categories according to the GHG Protocol – (3.8) upstream leased assets, (3.9) downstream transportation and distribution, (3.10) processing of sold products, (3.11) use of sold products (3.13) downstream leased assets, (3.14) franchises and (3.15) investments – currently are not taken into consideration because they are either currently not relevant for our company or because no fully developed, standardized calculation method is available.

In 2024, we reduced the sum of our Scope 1 and Scope 2 (market-based) greenhouse gas emissions by 1.9% compared with 2023. This could be achieved in particular through a further increase in electricity procured from renewable energies. In the five Scope 3 categories¹ that are relevant for our reduction target, our greenhouse gas emissions fell by 0.74 million metric tons of CO₂ equivalents compared with 2023, representing a decrease of 8.8%. In the broader eight Scope 3 categories², our greenhouse gas emissions fell by 0.80 million metric tons of CO₂ equivalents compared with 2023, representing a decrease of 8.7%. The reduction in Scope 3 emissions is largely due to lower greenhouse gas emissions in connection with the Scope 3 category (3.1) purchased goods and services. Category (3.1) purchased goods and services accounts for the most significant share of our Scope 3 greenhouse gas emissions, at 70%.

Greenhouse Gas Emissions Scope 1, 2 and 3

million t CO ₂ eq	Base year 2019	2023	2024	Change YoY (%)
Gross Scope 1 GHG emissions ¹	2.08	1.89	1.88	-0.5
Share of Scope 1 GHG emissions from regulated emission trading schemes (%)	-	14.0	13.0	-1.0
Gross location-based Scope 2 GHG emissions	1.79	1.66	1.65	-0.6
Gross market-based Scope 2 GHG emissions	1.71	1.12	1.08	-3.6
Gross Scope 3 GHG emissions ²	9.99	9.18	8.38	-8.7
of which (3.1) purchased goods and services	6.62	6.52	5.87	-10.0
of which (3.2) capital goods	0.51	0.49	0.37	-24.3
of which (3.3) fuel-and-energy-related activities (not included in Scope 1 or 2)	0.73	0.54	0.64	18.9
of which (3.4) upstream transportation and distribution	0.66	0.70	0.60	-14.5
of which (3.5) waste generated in operations	0.34	0.31	0.30	-2.6
of which (3.6) business travel	0.30	0.19	0.21	15.2
of which (3.7) employee commuting	0.12	0.13	0.12	-5.9
of which (3.12) end-of-life treatment of sold products	0.72	0.31	0.26	-13.4
Total GHG emissions (location-based)	13.86	12.74	11.91	-6.5
Total GHG emissions (market-based)³	13.78	12.20	11.34	-7.0

¹ The greenhouse gas emissions from the use of bioenergy are part of the Scope 1 greenhouse gas emissions. Here we assume that the greenhouse gas emissions from energy production are equal to the prior associated greenhouse gas removals.

² In accordance with the SBTi, we take into account the following five Scope 3 categories according to the GHG Protocol for reporting on the attainment of our reduction target for Scope 3 greenhouse gas emissions: (3.1) purchased goods and services, (3.2) capital goods, (3.3) fuel- and energy-related activities, (3.4) upstream transportation and distribution and (3.6) business travel. In addition to this reporting, we take into account a total of eight Scope 3 categories according to the GHG Protocol for reporting according to ESRS and for observation and the future enhancement of our methodology for calculating Scope 3 greenhouse gas emissions.

³ For Bayer, the GHG Protocol's market-based method most reliably reflects the Scope 2 emission values and the success of emissions reduction measures.

There were no significant changes in the corporate structure and value chain in 2024 that could impact the reportable greenhouse gas emissions. Nor were there any significant results or changes with regard to greenhouse gas emissions between our closing date and that of the companies in our supply chain.

Due to the varying depth of value creation, direct and indirect greenhouse gas emissions (Scope 1 and Scope 2) are unequally distributed among our divisions. Our raw material extraction activities, including treatment and downstream processing, for the manufacture of the crop protection intermediates of Crop Science are especially energy-intensive – this division therefore accounts for the greatest share of our greenhouse gas emissions.

¹ (3.1) purchased goods and services, (3.2) capital goods, (3.3) fuel- and energy-related activities, (3.4) upstream transportation and distribution and (3.6) business travel

² (3.1) purchased goods and services, (3.2) capital goods, (3.3) fuel- and energy-related activities, (3.4) upstream transportation and distribution, (3.5) waste generated in operations, (3.6) business travel, (3.7) employee commuting and (3.12) end-of-life treatment of sold products

Gross Scope 1 Greenhouse Gas Emissions by Division

million t CO ₂ eq	2023	2024
Gross Scope 1 GHG emissions	1.89	1.88
Crop Science	1.55	1.56
Pharmaceuticals	0.17	0.17
Consumer Health	0.02	0.02
Other segments ¹	0.16	0.13

¹ These include greenhouse gas emissions from the vehicle fleet and emissions caused by the enabling functions.

Gross Market-Based Scope 2 Greenhouse Gas Emissions by Division

million t CO ₂ eq	2023	2024
Gross market-based Scope 2 GHG emissions	1.12	1.08
Crop Science	0.94	0.93
Pharmaceuticals	0.11	0.08
Consumer Health	0.05	0.04
Other segments ¹	0.02	0.03

¹ These include greenhouse gas emissions from the vehicle fleet and emissions caused by the enabling functions.

Carbon dioxide (CO₂) accounts for the biggest share of our greenhouse gas emissions.

Gross Scope 1 Greenhouse Gas Emissions by Emitted Greenhouse Gas

million t CO ₂ eq	2023	2024
Gross Scope 1 GHG emissions	1.89	1.88
of which carbon dioxide (CO ₂)	1.84	1.83
of which ozone-depleting substances	0.003	0.003
of which partially fluorinated hydrocarbons (HFCs)	0.04	0.04
of which nitrous oxide (N ₂ O)	0.01	0.01
of which methane (CH ₄)	0.003	0.003

13% of our Scope 1 greenhouse gas emissions were generated in 2024 at sites that are subject to a regulated emissions trading system in which we participate (2023: 14%). In 2024, we participated in European emissions trading with a total of five plants (2023: five plants). The greenhouse gas emissions of these plants amounted to approximately 248,000 metric tons of CO₂ equivalents in 2024 (2023: approximately 265,000 metric tons of CO₂ equivalents).

As part of our energy procurement policy, we use various contractual tools for the purchase of electricity from renewable source depending on different regulatory requirements and local circumstances.

Contractual Instruments Related to Purchased Electricity from Renewable Sources

	2023	2024
Purchased or acquired electricity from renewable sources (thousand MWh)	1,183	1,331
of which share of electricity from renewable sources purchased through power purchase agreements (%)	42	56
of which share of electricity purchased from renewable sources evidenced by renewable energy certificates (%)	58	44

For more information:

// [Bayer Sustainability Statement in the Annual Report 2024 – E1 Climate Change](#)

// [Bayer Transition and Transformation Plan](#)

// [Bayer 2024 Impact Report – Chapter 7.2 Climate](#)

// We address our climate protection activities in our latest response to the CDP questionnaire (formerly the Carbon Disclosure Project): www.bayer.com/cdp

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