

C0. Introduction

C0.1

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

“Health for all, hunger for none” – putting an end to hunger and helping everyone lead a healthy life, while at the same protecting ecosystems. That’s what we aspire to achieve, guided by our corporate purpose “Science for a better life.” The major issues of our time can only be addressed if we work together. Our campaigns #voranbringen in Germany and “This is why we science” in the United States underscore our approach. We are a life science company and a global leader in health care and nutrition. Our innovative products support efforts to overcome the major challenges presented by a growing and aging global population. We help prevent, alleviate and treat diseases. We also aim to ensure the world has a reliable supply of high-quality food, feed and plant-based raw materials. As part of this endeavor, the responsible use of natural resources is always a top priority.

We aim to enhance our company’s earning power and create value for customers, patients, shareholders, employees and society. Growth and sustainability are integral parts of our strategy, guided by our corporate values of Leadership, Integrity, Flexibility and Efficiency, or LIFE for short.

This culture ensures a common identity throughout the Bayer Group.

The management structure of the Bayer Group comprises three divisions – Pharmaceuticals, Consumer Health and Crop Science – which are also our reporting segments. We operate sites around the world, and some are used by multiple segments. As of December 31, 2019, the Bayer Group comprised 392 consolidated companies in 87 countries.

On June 7, 2018, Bayer completed the acquisition of the Monsanto Company, St. Louis, Missouri, United States (Monsanto). In 2019, the newly acquired agricultural business was thus reported for the full year. The portfolio and structural measures announced in late 2018 led to the following changes in the corporate structure: (1) The sale of our Animal Health business unit, was agreed in August 2019. As a result, it no longer constitutes a reportable segment and has been accounted for retroactively for 2018 and 2019 as a discontinued operation. (2) The service company Currenta, which operates the Chempark sites in Leverkusen, Dormagen and Krefeld-Uerdingen, is no longer part of the Bayer Group after the sale of our majority stake closed in November 2019. Currenta’s business activities are reported retroactively for 2018 and 2019 under discontinued operations. (3) The services previously performed by Business Services are gradually being transferred to the enabling functions and divisions as part of the Group restructuring.

As in our previous CDP reports, we are reporting according to the operational control approach to provide an accurate picture of Bayer’s life science businesses.

**Forward-Looking Statements**

This report may contain forward-looking statements based on current assumptions and forecasts made by Bayer management. 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 Bayer’s public reports which are available on the Bayer website at www.bayer.com. The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2019	December 31 2019	No	<Not Applicable>

C0.3

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

- Argentina
- Belgium
- Brazil
- China
- France
- Germany
- India
- Mexico
- Spain
- United States of America

C0.4

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

EUR

C0.5

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

Operational control

C-CH0.7

(C-CH0.7) Which part of the chemicals value chain does your organization operate in?

Row 1

Bulk organic chemicals

Please select

Bulk inorganic chemicals

Please select

Other chemicals

Please select

C1. Governance

C1.1

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

Yes

C1.1a

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

Position of individual(s)	Please explain
Chief Sustainability Officer (CSO)	<p>The highest level of responsibility for climate-related issues lies with Bayer's CEO who also functions as Bayer's Chief Sustainability Officer (CSO). As CSO he is RESPONSIBLE FOR THE GROUP-WIDE SUSTAINABILITY PROGRAM INCLUDING CLIMATE-RELATED TARGETS AND MEASURES. EXAMPLES OF CLIMATE-RELATED DECISIONS: In 2019, the CSO decided to commit the Bayer AG to the Science Based Target Initiative. The Board and specifically the CEO decided that climate is one of the core commitments of Bayer. He actively promotes the climate Agenda of Bayer, e.g. highlighting our climate ambition during the Davos conference. In 2019, Bayer's Board of Management including the CSO also adopted an advanced sustainability strategy along with new nonfinancial Group targets and key performance indicators. This strategy includes, e.g., ambitious climate measures to become a completely carbon-neutral company by 2030. Our advanced sustainability strategy represents our greater focus on increasing the overall societal impact of our business activities. Sustainability is therefore a core element of our corporate strategy. In this process, the role of the Chief Sustainability Officer was handed over from the Board member responsible for Human Resources, Technology and Sustainability to the Chairman of the Board of Management (CEO). The position was selected to ensure that climate-related risks and opportunities are identified at group-level and climate-related targets and measures are driven Group-wide and integrated into Bayer's business strategy. In his role as Chief Sustainability Officer, the Chairman of the Board of Management is supported by the Public Affairs, Science &amp; Sustainability enabling function. He is the superior of the Head of Public Affairs, Science &amp; Sustainability who is responsible for Bayer's sustainability strategy including Bayer's CLIMATE STRATEGY and targets. Relevant topics in the field of sustainability incl. climate-related topics are discussed during their regular meetings. The implementation of our sustainability targets including CLIMATE-RELATED TARGETS is a KEY ELEMENT OF THE ANNUAL PERFORMANCE OBJECTIVES of both.</p>

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	<ul style="list-style-type: none"> <li>Reviewing and guiding strategy</li> <li>Reviewing and guiding major plans of action</li> <li>Reviewing and guiding risk management policies</li> <li>Reviewing and guiding annual budgets</li> <li>Setting performance objectives</li> <li>Monitoring implementation and performance of objectives</li> <li>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</li> </ul>	<Not Applicable>	<p>i) WHO BRIEFES THE BOARD ON WHAT: Climate-related strategic decisions are brought up in board discussions by the Head of Public Affairs, Science &amp; Sustainability (PASS) or the CSO as needed. In 2019, climate-related issues were discussed in more than 5 Board meetings, for example during the discussion and approval of the sustainability strategy including a workshop for the Supervisory Board. In addition, the PASS Head informs the board about environmental KPIs incl. climate-related KPIs and target achievement in the context of the annual Board meeting dedicated to the approval of our Annual Report (AR). The CSO and the CFO are informed several times by the AR taskforce during the reporting cycle from Aug to Feb. The Head of PASS monthly reports HSE KPIs to the CSO. As our Crop Science Business has major dependencies and potentials for climate also the Division head of Crop Science brings up climate related topics. ii) CONTRIBUTION TO BOARD OVERSIGHT: The governance mechanisms selected contribute to an informed view of the Board on climate-related issues and ensure a coherent and Group-wide response, if needed. EXAMPLE 1 (Governance mechanisms “Setting performance objectives”, Monitoring implementation and performance of objectives” or “progress against goals and targets”): In 2019 the CSO decided to commit the Bayer AG to the Science Based Target Initiative. Through the reporting of climate-related KPIs described above, the Board can ensure a Group-wide response in case of any deviations of CO2 emissions or energy efficiency KPIs from the required values. As the climate related targets are part of the board compensation there is an additional pull to stay informed on progress and measures. EXAMPLE 2 (Governance mechanisms “Reviewing and guiding annual budgets” / “major plans of action” / “risk management policies” / “strategy”): Through the integration of climate-related issues in major investment decisions, the regular review of climate-related risks, and the integration of climate-related issues in the review of strategic decisions or R+D priorities, the Board can ensure e.g. an adequate inclusion of climate risks and opportunities in our business, sustainability or risk management strategy. E.g. all capital expenditures above €10 million undergo an ecological assessment; CAPEX above €20 million go into the Board.</p>

**C1.2**

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

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

**C1.2a**

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

i) POSITION IN THE CORPORATE STRUCTURE:

As Bayer's CEO, the Chief Sustainability Officer is the Chairman of the Board of Management. In this position, he and the other members of the Board of Management report to the Supervisory Board. The CEO is the direct superior of the Head of Public Affairs, Science & Sustainability (PASS) leading the Group-wide Public Affairs, Science & Sustainability function. There are regular meetings with the Head of PASS, in which sustainability topics are discussed.

ii) RESPONSIBILITIES REGARDING THE ASSESSMENT AND MONITORING OF CLIMATE-RELATED ISSUES:

The Chief Sustainability Officer carries DIRECT RESPONSIBILITY FOR the group-wide sustainability program incl. CLIMATE-RELATED TARGETS AND MEASURES. For example, in 2019 the CSO decided to commit the Bayer AG to the science based target initiative. The Chief Sustainability Officer is CONTINUOUSLY INFORMED ABOUT THE STATUS OF CLIMATE-RELATED TARGETS AND MEASURES during his regular meetings with the Head of Public Affairs, Science & Sustainability, who monitors all relevant topics in the field of sustainability and environment. The PASS head is the direct superior of the Head of Sustainability, who is responsible for the day-to-day management of climate-related targets and measures, their monitoring, reporting and verification of related milestones.

During the official sign-off process of the Annual Report, the CSO is responsible for all content within his area of responsibility. As CSO he is therefore directly RESPONSIBLE FOR the entire non-financial section of our Annual Report including our CLIMATE-RELATED REPORTING. For example, in Bayer's Annual Report 2019, he was responsible for signing-off the description of our climate-related measures and key performance indicators (e.g. GHG emissions and energy) described in the chapter Environmental Protection. The CSO is informed several times by the Annual Report taskforce during the reporting cycle from Aug to Feb.

The CSO is further informed on progress on climate related KPI as they are part of the board compensation targets.

The CSO is also responsible for SIGNING OFF BAYER'S RESPONSE TO THE CDP CLIMATE REQUEST.

iii) RATIONALE FOR WHY RESPONSIBILITY LIES WITH THAT POSITION:

As part of Bayer's corporate strategy, sustainability is firmly established at Board level. Board-level as well as management-level responsibility for the Group's sustainable orientation lies with the Chief Sustainability Officer. This POSITION WAS SELECTED on management-level for oversight of all climate-related issues to ensure that climate-related targets and measures are monitored and driven on group-level to ensure a comprehensive and cohesive approach to climate protection.

**C1.3**

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	Bayer remunerates employees in accordance with a transparent and fair system that includes fixed and variable salary components. The variable component is determined by the company performance, the divisions, corporate functions and business services performance and by the individual employee's achievements. For employees responsible for our climate-related strategy or management, climate-related issues form part of the variable salary component. Additionally, in 2019 the Board of Management decided to use sustainability criteria including climate action measures as additional criteria for individual one-time payments (Top Performance Award). Nonfinancial targets, including our climate-related targets, already constitute components of the short-term variable compensation of the Board of Management. Furthermore, from 2021, quantitative targets derived from the sustainability strategy are set to become important components of the long-term variable compensation of the Board of Management.

**C1.3a**

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

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Chief Sustainability Officer (CSO)	Monetary reward	Emissions reduction target	Bayer remunerates employees in accordance with a transparent and fair system that includes fixed and variable salary components. The variable component is determined by the company performance, the divisions, corporate functions and business services performance and by the individual employee's achievements. In 2019 the CSO received the majority of his remuneration as a variable income component consisting of short-term and long-term incentives. Within the short-term incentives, the performance of Board Members of Bayer AG is evaluated individually with regard to the performance in their respective areas of responsibility. This Board Member is ACCOUNTABLE FOR THE AREA OF SUSTAINABILITY. His individual target attainment is determined by the Supervisory Board. Board Members are incentivized on the attainment of sustainability KPIs, 30% of the divisional component within variable compensation is based on the attainment of qualitative targets in areas such as innovative progress, safety, compliance and sustainability. Additionally individual goals for board members include sustainability e.g. for 2019: Setting up our new sustainability and social responsibility strategy. This strategy includes, e.g., ambitious climate measures to become a completely carbon-neutral company by 2030. From 2021 onward sustainability will also be part of the long-term incentives for all board members including the CSO. Therefore, the Supervisory board defines sustainability targets including our CLIMATE TARGETS over a 4-year span. These targets are incorporated into the long-term incentivization with a weighting of 20%.
Board/Executive board	Monetary reward	Emissions reduction target	Board Members are incentivized on the attainment of sustainability KPIs, 30% of the divisional component within variable compensation is based on the attainment of qualitative targets in areas such as innovative progress, safety, compliance and sustainability. Additionally individual goals for board members include sustainability e.g. for 2019: Setting up our new sustainability and social responsibility strategy including our climate-related measures. This strategy includes, e.g., ambitious climate measures to become a completely carbon-neutral company by 2030. From 2021 onward sustainability will be part of the long-term incentives for all board members. Therefore the Supervisory board defines sustainability targets over a 4-year span. These targets are incorporated into the long-term incentivization with a weighting of 20%. At the beginning of each four-year tranche, the Supervisory Board determines a minimum, target and maximum value for the individual sustainability targets. The specific sustainability targets are disclosed in the remuneration report. An explanation of how the achievement of the individual sustainability targets was determined will be published subsequently in Bayer's annual remuneration report.
Executive officer	Monetary reward	Efficiency target	The Head of Public Affairs, Science & Sustainability is directly reporting to the Board Member responsible for Sustainability. As part of his variable income component he receives financial incentives that are directly linked to the success of our climate-related targets. Performance indicators include agreed milestones and set TARGETS with respect to our energy efficiency as well as emission reduction targets.
Executive officer	Monetary reward	Efficiency target	The Head of Corporate Sustainability, reporting to the Head of Public Affairs, Science & Sustainability, receives financial incentives that are directly linked to the success of our climate-related targets as a part of her variable income component. Performance indicators include agreed milestones and set TARGETS with respect to our energy efficiency as well as emission reduction targets.
Environment/Sustainability manager	Monetary reward	Efficiency project	Managers from Bayer's Corporate Sustainability (CS) department receive financial incentives related to climate protection. For example, the annual performance targets of the department head for CS Strategy and Performance Management include the IMPLEMENTATION OF CLIMATE-RELATED TARGETS as a key measure.
Energy manager	Monetary reward	Energy reduction target	Bayer's GHG EMISSION REDUCTION TARGETS are cascaded down through the organization and translated into energy efficiency targets for energy/site managers. These energy efficiency targets form part of the performance indicators within their variable income component. According to the implementation strategy of ISO 50001, Energy Managers receive their short-term incentives dependent, amongst other, on the DEGREE OF ENERGY MANAGEMENT SYSTEM IMPLEMENTATION.
All employees	Monetary reward	Efficiency project	Bayer has implemented the Bayer Ideas Pool, an employee suggestion program, which honours improvement ideas from employees with monetary bonus payments. The Ideas Pool also acknowledges ideas that lead to ENERGY SAVINGS and thus incentivizes ideas for ENERGY EFFICIENCY AND CO2 REDUCTION, which helps Bayer achieve its GHG EMISSIONS TARGETS. In 2019 the Board of Management decided to use sustainability criteria including climate action measures as additional criteria for individual one-time payments (Top Performance Award).
All employees	Non-monetary reward	Other (please specify) (Climate-related projects)	Bayer has introduced the worldwide innovation platform "WeSolve" to strengthen the innovation culture in all business areas and to enhance worldwide collaboration. All Bayer employees globally can contribute to this platform to develop solutions, including those referring to CLIMATE PROTECTION. Innovation coaches accompany the process starting from the submission of the idea until the finding of the solution. This process refers to all challenges, including climate-related topics.

**C2. Risks and opportunities**

**C2.1**

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

Yes

**C2.1a**

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

	From (years)	To (years)	Comment
Short-term	0	1	
Medium-term	1	5	
Long-term	5	10	

**C2.1b**

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

The Bayer Group has 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. The Bayer Group's risk management system is aligned to internationally recognized standards and principles such as the ISO 31000 risk management standard. Risk owners decide on a targeted risk level and define a risk management strategy and risk management measures.

All relevant risks worldwide, incl. climate change-related risks, are recorded and monitored at an early stage in our risk management system. We regard risks as negative deviations from projected or target values for potential future developments.

### i) DEFINITION FOR DIRECT OPERATIONS AND VALUE CHAIN

Bayer DEFINES a risk as having a SUBSTANTIVE FINANCIAL IMPACT, if the identified risk is relevant for the respective risk owner and/or function.

With regard to our Product Supply Function, a potential impact of €7 MILLION CASH FLOW is regarded to be substantive and monitored in the database.

### INDICATORS / THRESHOLDS:

Risks are classified as high, medium or low to assess their materiality regarding the overall risk portfolio. Impact is rated according to quantity and/or quality. The quantitative assessment reflects the possible loss of cash flows. Risks are evaluated with regard to their potential impact and likelihood of occurrence, taking into account established mitigation measures, in a 5x5 matrix. The likelihood of occurrence is assessed on a scale ranging from very unlikely (<10%), unlikely (10%-30%), possible (30-50%), likely (50-70%), very likely (>70%) over a period of 10 years. The potential impact is determined on a scale from moderate (>€150-250 mio), medium (>€250-750 mio), significant (>€750-1,500 mio), major (>€1,500-2,500 mio) to severe (>€2,500 mio). With regard to our Product Supply Function, a potential impact of €7 MILLION CASH FLOW is regarded to be substantive and monitored in the database.

A qualitative assessment is based on criteria such as the impact on our strategy or reputation, the potential loss of stakeholder confidence, and the potential violation of sustainability principles. The higher rating, qualitatively or quantitatively, determines the overall assessment.

Risks with a potential impact of >€5,000 million are separately examined by the Bayer Assurance Committee to determine their potential to endanger the company's continued existence. A report on the risk portfolio is submitted to the Board of Management and the Audit Committee of the Supervisory Board at least once a year.

The definition applies to our direct operations and to our value chain. Risks are reviewed in our risk management system, incl. Climate-change-related risks.

### ii) DEFINITION FOR SUPPLIERS

Suppliers have the potential to have a SUBSTANTIVE IMPACT on the business if they are classified as strategically important or potential high-risk suppliers.

### INDICATORS / THRESHOLDS:

1) Strategically important suppliers are defined as suppliers that have a major influence on business, incl. procurement spend and long-term collaboration prospects (3-5 years).

2) The risk definition for potential high-risk suppliers is based on country and business category sustainability risks.

The definition applies to our entire supply chain. Data are reviewed and updated continuously. Strategically important and potentially high-risk suppliers' sustainability performance, incl. climate-change-related aspects, is evaluated via assessments and on-site audits.

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## C2.2

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

### Value chain stage(s) covered

Direct operations  
Upstream  
Downstream

### Risk management process

Integrated into multi-disciplinary company-wide risk management process

### Frequency of assessment

More than once a year

### Time horizon(s) covered

Short-term  
Medium-term  
Long-term

### Description of process

i) **RISK AND OPPORTUNITY IDENTIFICATION AND ASSESSMENT PROCESS:** The Bayer Group has 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. The risk management system is aligned to internationally recognized standards and principles such as the ISO 31000 risk management standard. Our risk management process consists of risk identification, assessment, treatment, reporting and process monitoring and improvement. All relevant risks worldwide, incl. climate change-related risks, are recorded and monitored at an early stage in our risk management system. The risks are monitored CONTINUOUSLY by the risks owners in the operational divisions and functions. The risk portfolio is reviewed REGULARLY by the Bayer Assurance Committee. Our HSE and Sustainability managers monitor climate-related legislative changes and academic publications. Climate-related risks that apply to individual facilities are evaluated within our HSE management process. Potential physical risks related to climate change are covered and monitored by Bayer's Emergency Response System (BayERS), which is a mandatory element of the integrated HSE management system at Bayer's production sites. All risks worldwide, incl. climate change-related risks on asset level, that could significantly impact the achievement of our financial and nonfinancial objectives, are recorded and monitored at an early stage in our risk management system. Industrial marketing managers CONTINUOUSLY monitor market developments and indicate upcoming opportunities to the R&D departments, considering climate-related customer and market needs in R&D e.g. reg. the need of adaptation to climate change in agriculture. The identified opportunities and risks are updated at REGULAR conferences and incorporated into strategic and operational planning, e.g. as part of the ANNUAL strategic planning cycle. The core phase of our strategic planning process starts with a comprehensive market analysis. The divisions build on this by analyzing their market environments to identify opportunities including climate-related opportunities. Climate-related opportunities are also identified by management and employees through DAILY OBSERVATION of internal processes and markets. Potential climate-related risks and opportunities are reported to the Head of Public Affairs, Science & Sustainability and the Head of Sustainability, who are accountable for their identification and evaluation. Risks are classified as high, medium or low to assess their materiality regarding the overall risk portfolio. Impact is rated according to quantity and/or quality. The quantitative assessment reflects the possible loss of cash flows. Risks are evaluated with regard to their potential impact and likelihood of occurrence, taking into account established mitigation measures, in a 5x5 matrix. The likelihood of occurrence is assessed on a scale ranging from very unlikely (<10%), unlikely (10%-30%), possible (30-50%), likely (50-70%), very likely (>70%) over A PERIOD OF 10 YEARS. The potential impact is determined on a scale from moderate (>€150-250mio), medium (>€250-750mio), significant (>€750-1,500mio), major (>€1,500-2,500mio) to severe (>€2,500mio). Regarding our Product Supply Function, a potential impact of €7 million cash flow is regarded to be SUBSTANTIVE. A QUALITATIVE ASSESSMENT is based on criteria such as the impact on our strategy or reputation, the potential loss of stakeholder confidence, and the potential violation of sustainability principles. The higher rating, qualitatively or quantitatively, determines the overall assessment. Also, Bayer identifies and prioritizes sustainability-related opportunities and risks, incl. those related to climate change, by considering the expectations of important stakeholders. These are matched up with an internal assessment, deriving the relevant fields of action for Bayer. The findings are documented in a materiality matrix, which includes different fields of actions, e.g. climate protection rated very high in terms of both: stakeholder relevance and relevance for Bayer. Risks with a potential impact of >€5,000 mio. are separately examined by the Bayer Assurance Committee to determine their potential to endanger the company's continued existence. A report on the risk portfolio is submitted to the Board of Management and the Audit Committee of the Supervisory Board AT LEAST ONCE A YEAR. ii) **CASE STUDIES: PHYSICAL OPPORTUNITY:** For about 20 years Crop Science regularly analyzes the market for vector-control products in the context of Bayer's annual strategic planning cycle. The analysis includes, e.g., the market potential for bed nets and indoor residual spray and trends impacting the vector-control market. One of the relevant trends is the development of funding for vector-control solutions. Another relevant trend is the expected climate change-related geographic expansion of vector-borne diseases such as malaria, dengue fever, chikungunya and Zika. Crop Science identified the latter as one potential driver of growing demand for vector-control solutions as it could result in another 40 to 60 mio. people globally being exposed to the risk of vector-borne diseases like malaria. In 2013, analyses showed the resistance in mosquitoes to have increased significantly and the decision was taken in Bayer's Portfolio Review Meeting to develop new insecticide resistance-breaking substances for control of both malaria and dengue vectors. In early 2019 Bayer introduced Fludora® Fusion, the first product to combine two modes of action for use in malaria indoor residual spray programs. In 2020 Bayer is planning to introduce a new active substances combination under the trade mark Fludora Comax, to fight dengue fever, primary in APAC and in 2021 in Latin America. **TRANSITIONAL RISK:** The manager responsible for monitoring climate-related legislation identified the risk from the changed interpretation of the EEG law regarding capacity layer models in January 2017. Subsequently he analyzed the risk together with Bayer's legal team. The risk was evaluated as about as likely as not in terms of likelihood and relevant in terms of potential impact. The risk was then reported to the CHS Leadership Team and the responsible Board Member as well as to Accounting. Based on a thorough analysis relevant options to address the risk were derived and presented to the Board and other relevant bodies in order to achieve endorsement for the proposed path forward. To reduce the magnitude of this climate-related regulatory risk BAG decided to conduct a thorough analysis including the involvement of external law firms and external expertise to assess the situation and help BAG plead its position. The transmission system operator has launched a judicial review of the existing "self-generation model" in QIV 2019.

## C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	i) EXAMPLE: Bayer considers the risk from current regulation, e.g. the impact of cap and trade schemes like the EU ETS, in which Bayer participates. Current legislative discussions in the EU are expected to further increase carbon prices. In this respect, the EU Emissions Trading Scheme (ETS) is the main regulatory framework that poses a risk to the European industry. Current trends in certificate price appear to be consistent with the regulator's aim for a much higher certificate price in order to effectively realize steering of energy generation according to climate requirements. In light of this risk, the EU ETS could influence Bayer directly through our own energy generation facilities participating in the EU ETS and indirectly, through our supply chain with regard to energy supply, as we expect the prices for our purchased energy to rise. Between 2019 and 2022, Bayer expects total costs of EUR 30-55 million due to the possible continuous tightening of the EU ETS. We expect this impact to remain low. As life science company we don't have any energy-intensive production in the EU. ii) INCLUSION IN RISK ASSESSMENT: Our Energy Managers, Sustainability Managers and our Legal team constantly monitor climate-related legislative changes and developments as well as interventions of the EU in the EUA (European Emission Allowances) market and analyze their potential impact on Bayer. Potential risks are reported to the Heads of Public Affairs, Science & Sustainability and Corporate Sustainability, who are accountable for the identification and evaluation of climate-related risks. Also, Enterprise Risk Management is informed about relevant risks.
Emerging regulation	Relevant, always included	i) EXAMPLE: Due to the recent developments in climate and energy politics and also as a consequence of the Paris Agreement, it is almost certain that the regulatory pressure will increase on a national, an EU and an international level. One example of a new cap and trade scheme that could potentially affect Bayer in the coming years is the Chinese national carbon trading scheme, which was launched in December 2017. ii) INCLUSION IN RISK ASSESSMENT: Our Energy Managers, Sustainability Managers and our Legal team constantly monitor climate-related legislative changes and developments and analyze their potential impact on Bayer. Potential risks are reported to the Heads of Public Affairs, Science & Sustainability and Corporate Sustainability, who are accountable for the identification and evaluation of climate-related risks. Also, Enterprise Risk Management is informed about relevant risks.
Technology	Relevant, sometimes included	i) EXAMPLE: In terms of risks, technology could potentially have an impact on our competitiveness via an increase of operational costs or via effects on our reputation. Examples are current developments in technology in the field of mobility, such as E-Mobility or hydrogen fuel cells. A large part of Bayer's fleet consists of diesel fuel vehicles which are now being prohibited in some cities providing another incentive to consider alternatives. We already have E-Mobility pilot projects underway. We are building up an infrastructure of charging stations. Bike sharing and car sharing for all employees are also launched. ii) INCLUSION IN RISK ASSESSMENT: Our Sustainability Managers constantly monitor and analyze technological changes and technical developments that could affect Bayer and analyze their potential impact. Potential risks are reported to the Heads of Public Affairs, Science & Sustainability and Corporate Sustainability, who are accountable for the identification and evaluation of climate-related risks. Also, we constantly analyze the potential of emerging technologies such as carbon capture and storage in terms of their potential to help us mitigate climate-related risks and help increase our cost position and reduce GHG emissions.
Legal	Relevant, always included	i) EXAMPLE: Bayer AG (BAG) considers the risk from climate-related litigation, e.g. due to issues resulting from the interpretation of climate-related regulations. One potential issue that might lead Bayer to litigate is due to a revision to the Renewable Energy Sources Act (EEG). This EEG revision that became effective at the start of 2017 declared that energy generation via capacity layer models is not subject to the burden-free self-generation. For existing facilities an option for "amnesty" exists, if several conditions are met. The burden of prove lies with the participants in the capacity layer model. If the Federal Network Agency does not accept the arguments delivered by the participants EEG-savings of the past (since 2014) and future savings are at risk. Bayer is a participant in a capacity layer model together with other consortium partners since 2008. In light of the new interpretation the 2017 EEG has applied to capacity layer models, this risk of retroactive EEG apportionment payments could influence BAG's direct operations. Based on a timeframe of 4 years (2016-2019) for which potential retroactive payments could become relevant, BAG calculates the financial impact of this risk to be about EUR 100 Million. Bayer has already endeavoured to meet all conditions stipulated for amnesty of existing plants but amnesty is not yet confirmed. The transmission system operator (TSO) has launched a judicial review of the existing "self-generation model" in the fourth quarter of 2019. ii) INCLUSION IN RISK ASSESSMENT: The manager responsible for monitoring climate-related legislation identified the risk from the changed interpretation of the EEG law regarding capacity layer models in January 2017 and analyzed the risk together with Bayer's legal team. The risk was evaluated as about as likely as not in terms of likelihood and relevant in terms of potential impact. The risk was reported to the Corporate Health & Safety (CHS) Leadership Team, the responsible Board Member and Accounting. Based on a thorough analysis relevant options to address the risk were derived and presented to the Board and other relevant bodies in order to achieve endorsement for the proposed path forward. To reduce the magnitude of this climate-related regulatory risk BAG decided to conduct an analysis including the involvement of external law firms and external expertise to assess the situation and help BAG plead its position.
Market	Relevant, always included	i) EXAMPLE: Bayer considers potential market risks, which could potentially affect the demand for our products e.g. through the impact of climate-related reputation. Worldwide, investors, NGOs and the public increasingly focus on how companies are dealing with environmental issues such as climate. Currently, there is no indication that climate-related reputation risks might increase for Bayer. E.g., in 2019 Bayer's inclusion in the FTSE4Good was confirmed – further strengthening Bayer's reputation. In 2019 Bayer was again evaluated by CDP as one of the leading international companies in the area of climate protection. Bayer also monitors market risks regarding an interruption of supply e.g. due to climate change-related extreme weather events. E.g., for one supplier in Japan, the risk of natural disasters is relatively high. Bayer closely monitors this risk and validates that we have enough storage or further suppliers, located in other countries which could supply Bayer in case of a disruption. For Bayer, supply chain risks related to climate change do not represent a substantial threat compared to other supply chain risks. Currently, there is no indication that risks due to climate change-related weather extremes increase relevantly at supplier sites. ii) INCLUSION IN RISK ASSESSMENT: Our Sustainability Managers constantly monitor our sustainability-related performance incl. climate-related issues. We analyze the sustainability performance of our peers in order to better understand potentially emerging reputational risks. Potential risks are reported to the Heads of Public Affairs, Science & Sustainability and Corporate Sustainability, who are accountable for the identification and evaluation of climate-related risks. Also, Enterprise Risk Management is informed about relevant risks. Bayer's supply chain transparency tool provides a strong visibility of our supply network. A natural disaster index indicates the risk related to extreme weather events. Through a large database of online sources, the system detects earliest indicators of company-specific risks and monitors those. Real-time alerts on potentially disrupting events containing details of potentially affected materials and products allow Bayer a proactive risk assessment. We are continuously improving our sub-tier transparency to also monitor risks concerning the suppliers of our suppliers.
Reputation	Relevant, always included	i) EXAMPLE: Bayer considers potential risks arising from climate-related reputation which could potentially affect the demand for our products or our access to capital. Worldwide, investors, NGOs and the public are increasingly focusing on how companies are dealing with environmental issues such as climate change and how they are integrating these topics into their business strategies and transparent communication. Currently, there is no indication that climate-related reputation risks might increase for Bayer. E.g., in 2019 Bayer's inclusion in FTSE4Good, an important sustainability index, was confirmed – further strengthening Bayer's reputation. Bayer also continues to be listed on the MSCI World Low Carbon Target Index, the STOXX® Europe Sustainability Index and the STOXX® Global ESG Impact index. In addition, in 2019 Bayer was again evaluated by CDP as one of the leading international companies in the area of climate protection. ii) INCLUSION IN RISK ASSESSMENT: Our Sustainability Managers constantly monitor our sustainability-related performance incl. climate-related issues. Also, we analyze the sustainability performance of our peers in order to better understand potentially emerging reputational risks. Potential risks are reported to the Heads of Public Affairs, Science & Sustainability and Corporate Sustainability, who are accountable for the identification and evaluation of climate-related risks. Also, Bayer identifies and prioritizes sustainability-related risks, including those related to climate change, by analyzing the expectations of important stakeholders. These are matched up with an internal assessment, thereby deriving the relevant fields of action for Bayer. The findings are documented in a materiality matrix. It encompasses the changing priorities of external and internal stakeholders in relation to the relevance for Bayer and its stakeholders on a scale ranging from low to very high. It includes different fields of actions, e.g. climate protection (rated very high in terms of stakeholder relevance and very high in terms of relevance for Bayer in the materiality matrix).
Acute physical	Relevant, sometimes included	i) EXAMPLE: Bayer considers potential acute physical risks in the form of climate change-related extreme weather events, such as cyclones, hurricanes or floods affecting our production facilities. An increase of such weather events affecting our facilities could result in increased operational and capital cost and disruption in our production. Currently, there is no indication that risks due to climate change-related weather extremes increase at our sites. ii) INCLUSION IN RISK ASSESSMENT: Bayer observes these risks for all sites worldwide considering the past 50 and the next 10 years. The potential impact is evaluated regularly based on external research and our risk reporting: For example, we evaluated external studies such as a Global Insight study on weather developments and the 5th IPCC report, we analyzed risks reported to the Head of Corporate Health, Safety and Environment and the Head of Corporate Sustainability, and we discussed potential risks with our divisions.
Chronic physical	Relevant, sometimes included	i) EXAMPLE: Bayer considers chronic physical risks due to climate change-related changes in precipitation extremes, such as droughts. A potential increase of droughts affecting our production facilities could result in increased operational and capital cost and disruption in our production. An increase of droughts affecting our customers could lead to a reduction in demand for our products, such as seeds and crop protection products, in the affected regions. Currently, there is no indication that risks due to a climate-related increase in droughts increase at our sites. Neither is there an indication yet, that demand will be significantly affected in the near future due to droughts related to climate change. From a production standpoint we manage risk from drought by mainly contracting on irrigated hectares and geographical allocation by spreading production hectares in different regions. This can also include winter production (counter season). ii) INCLUSION IN RISK ASSESSMENT: Bayer observes the risks of climate-related droughts considering the past 50 and the next 10 years. The potential impact is evaluated regularly based on external research and our risk reporting: For example, we evaluated external studies such as a Global Insight study on weather developments and the 5th IPCC report, we analyzed risks reported to the Head of Corporate Health, Safety and Environment and the Head of Corporate Sustainability, and we discussed potential risks with our divisions.

**C2.3**

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

Yes



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

Risk 1

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

Upstream

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

Emerging regulation	Carbon pricing mechanisms
---------------------	---------------------------

**Primary potential financial impact**

Increased indirect (operating) costs

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

&lt;Not Applicable&gt;

**Company-specific description**

i) CLEAR DESCRIPTION: Legislative discussions in the EU are expected to further increase carbon prices. The EU Emissions Trading System (ETS) is the main regulatory framework that poses a risk to the European industry. Within the 3rd trading phase (2013-2020), the EU ETS might trigger an increase in electricity prices caused by the expected rise in carbon prices. This is expected due to measures such as the decision not to sell 900 million carbon allowances (EUA) within the 3rd phase of the EU ETS or the market stability reserve, activated in January 2019. These instruments and the unpredictable case BREXIT will most likely lead to a further increase in carbon prices through the reduction in the number of EUA on the market. In the long-term, a further impact on the ETS factor is expected from the framework for the EU Roadmap 2030. Further price increases are likely to occur due to recent developments in climate and energy politics and also as a consequence of the Paris Agreement. Current trends in EUA price appear to be consistent with the regulator's aim for a much higher EUA price in order to effectively realize steering of energy generation according to climate requirements. Bayer obtained free EUA according to the carbon leakage rating of the industry branches, for sites where Bayer is running own CHP facilities. For the 4th trading period (2021-2030) the rating has been revised and certain areas of Bayer's activities are not considered at risk in terms of carbon-leakage any more. This means that Bayer will be exposed to market risks in terms of procurement of EUA, whereas it has obtained free EUA in the past. ii) EFFECT ON BAYER: In light of this risk, the EU ETS could influence Bayer directly and indirectly: directly by running own CHP facilities with less free EUA (expected financial impact amounts 5m€ p.a. depending on market prices of EUA) and indirectly through our supply chain with regard to energy supply, as we expect the prices for our purchased energy to rise. Between 2019 and 2022, Bayer expects total costs of EUR 30-55 million due to the possible continuous tightening of the EU ETS. We expect this impact to remain low. As life science company we don't have any energy-intensive production in the EU.

**Time horizon**

Medium-term

**Likelihood**

More likely than not

**Magnitude of impact**

Low

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

Yes, an estimated range

**Potential financial impact figure (currency)**

&lt;Not Applicable&gt;

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

30000000

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

55000000

**Explanation of financial impact figure**

i) DESCRIPTION: The potential impact of this risk is increased prices for our purchased energy due to a continuous tightening of the EU ETS. ii) CALCULATION: Between 2019 and 2022, Bayer expects total costs of EUR 30-55 million due to the possible continuous tightening of the EU ETS. This calculation is based on internal emission regulations of the respective sites and the assumption that an increase in the price of emission allowances will initially rise to € 30 per ton during this period. We assume that the political decision makers are aiming for a certificate price of around EUR 40 for the needs-based management of energy production. Overall, the indirect impact of the EU ETS should remain relatively low as Bayer has invested heavily in energy efficiency measures in the past.

**Cost of response to risk**

14900000

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

To reduce the magnitude of climate-related regulatory risks Bayer AG is investing in energy efficiency in its own operations and is engaged in a constructive dialogue with policy makers. CASE STUDIES: a) Bayer AG is implementing more efficient production processes, thereby reducing emissions in its own operations. FOR EXAMPLE, efficiency measures in 2019 included process optimizations in several sites e.g. regarding heat recovery, pinch pointing, and effectiveness of steam generation. b) Furthermore, Bayer is closely monitoring the policy debate concerning the EU ETS and other regulatory frameworks worldwide. This allows Bayer to anticipate regulatory trends which can help to reduce the magnitude of climate-related regulatory risks. IMPLEMENTATION STATUS: a) In 2019, Bayer implemented energy efficiency and emissions reduction projects that resulted in an overall reduction of 9,072 metric tons in CO2 emissions. b) Implemented and ongoing. COST CALCULATION: a) The total investment costs for the energy efficiency and emissions reduction initiatives of BAG that were implemented in 2019 amount to EUR 9.2 million. b) In 2019 the costs incurred at our liaison offices in Europe for human resources, material and projects totalled approx. EUR 1.7 million in Berlin, Germany and EUR 4 million in Brussels, Belgium. Bayer's EU lobbying work also included climate-related discussions.

**Comment****Identifier**

Risk 2

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

Direct operations

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

Emerging regulation	Carbon pricing mechanisms
---------------------	---------------------------

**Primary potential financial impact**

Increased indirect (operating) costs

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

&lt;Not Applicable&gt;

**Company-specific description**

i) CLEAR DESCRIPTION: Legislative discussions in the EU are expected to further increase carbon prices. The EU Emissions Trading System (ETS) is the main regulatory framework that poses a risk to the European industry. Within the 3rd trading phase (2013-2020), the EU ETS might trigger an increase in electricity prices caused by the expected rise in carbon prices. This is expected due to measures such as the decision not to sell 900 million carbon allowances (EUA) within the 3rd phase of the EU ETS or the market stability reserve, activated in January 2019. These instruments and the unpredictable case BREXIT will most likely lead to a further increase in carbon prices through the reduction in the number of EUA on the market. In the long-term, a further impact on the ETS factor is expected from the framework for the EU Roadmap 2030. Further price increases are likely to occur due to recent developments in climate and energy politics and also as a consequence of the Paris Agreement. Current trends in EUA price appear to be consistent with the regulator's aim for a much higher EUA price in order to effectively realize steering of energy generation according to climate requirements. Bayer obtained free EUA according to the carbon leakage rating of the industry branches, for sites, where Bayer is running own CHP facilities. For the 4th trading period (2021-2030) the rating has been revised and certain areas of Bayer's activities are not considered at risk in terms of carbon-leakage any more. This means that Bayer will be exposed to market risks in terms of procurement of EUA, whereas it has obtained free EUA in the past. ii) EFFECT ON BAYER: In light of this risk, the EU ETS could influence Bayer directly and indirectly. Directly by running own CHP facilities with less free EUA (expected financial impact amounts 5m € p.a. depending on market prices of EUA). Between 2019 and 2022, Bayer expects total costs of € 30-55 million due to the possible continuous tightening of the EU ETS. We expect this impact to remain low. As life science company we don't have any energy-intensive production in the EU.

**Time horizon**

Medium-term

**Likelihood**

More likely than not

**Magnitude of impact**

Low

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

Yes, an estimated range

**Potential financial impact figure (currency)**

&lt;Not Applicable&gt;

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

30000000

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

55000000

**Explanation of financial impact figure**

i) DESCRIPTION: The potential implications of this risk are increased prices for EUA for our own energy generation plants due to a continuous tightening of the EU ETS. ii) CALCULATION: Between 2019 and 2022, Bayer expects total costs of EUR 30-55 million due to the possible continuous tightening of the EU ETS. This calculation is based on internal emission regulations of the respective sites and the assumption that an increase in the price of emission allowances will initially rise to € 30 per ton during this period. We assume that the political decision makers are aiming for a certificate price of around EUR 40 for the needs-based management of energy production. Overall, the direct impact of the EU ETS should remain relatively low as Bayer has invested heavily in energy efficiency measures in the past.

**Cost of response to risk**

14900000

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

To reduce the magnitude of climate-related regulatory risks Bayer AG is investing in energy efficiency in its own operations and is engaged in a constructive dialogue with policy makers. CASE STUDIES: a) Bayer AG is implementing more efficient production processes, thereby reducing emissions in its own operations. FOR EXAMPLE, efficiency measures in 2019 included process optimizations in several sites e.g. regarding heat recovery, pinch pointing, and effectiveness of steam generation. b) Furthermore, Bayer is closely monitoring the policy debate concerning the EU ETS and other regulatory frameworks worldwide. This allows Bayer to anticipate regulatory trends which can help to reduce the magnitude of climate-related regulatory risks. IMPLEMENTATION STATUS: a) In 2019, Bayer implemented energy efficiency and emissions reduction projects that resulted in an overall reduction of 9,072 metric tons in CO2 emissions. b) Implemented and ongoing. COST CALCULATION: a) The total investment costs for the energy efficiency and emissions reduction initiatives of BAG that were implemented in 2019 amount to EUR 9.2 million. b) In 2019 the costs incurred at our liaison offices in Europe for human resources, material and projects totalled approx. EUR 1.7 million in Berlin, Germany and EUR 4 million in Brussels, Belgium. Bayer's EU lobbying work also included climate-related discussions.

**Comment****Identifier**

Risk 3

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

Direct operations

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

Emerging regulation	Carbon pricing mechanisms
---------------------	---------------------------

**Primary potential financial impact**

Increased indirect (operating) costs

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

&lt;Not Applicable&gt;

**Company-specific description**

i) CLEAR DESCRIPTION: The most relevant regulation for energy supply and chemical production in Germany is the Renewable Energy Sources Act (EEG), aiming for an increase in the use of renewable energies in electricity generation. An EEG revision that became effective at the start of 2017 declared that energy generation via capacity layer models is not subject to the burden-free self-generation. For existing facilities an option for "amnesty" exists, if several conditions are met. The burden of prove lies with the participants in the capacity layer model. If the Federal Network Agency does not accept the arguments delivered by the participants EEG-savings of the past (since 2014) and future savings are at risk. ii) EFFECT ON BAYER: Bayer is a participant in a capacity layer model together with other consortium partners since 2008. In light of the new interpretation the 2017 EEG has applied to capacity layer models, this risk of retroactive EEG apportionment payments could influence BAG's direct operations. Based on a timeframe of 4 years (2016-2019) for which potential retroactive payments could become relevant, BAG calculates the financial impact of this risk to be about EUR 100 million. Bayer has already endeavored to meet all conditions stipulated for amnesty of existing plants but amnesty is not yet confirmed. The transmission system operator (TSO) has launched a judicial review of the existing "self-generation model" in the fourth quarter of 2019.

**Time horizon**

Medium-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium-low

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

Yes, a single figure estimate

**Potential financial impact figure (currency)**

100000000

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

<Not Applicable>

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

<Not Applicable>

**Explanation of financial impact figure**

i) DESCRIPTION: The potential financial impact reflects the cumulative risk of potential retroactive EEG apportionment payments. ii) CALCULATION: The calculation of the potential financial impact of this risk is based on the extent of BAG's own energy generation via a capacity layer model and the timeframe of 4 years (2016-2019) for which potential retroactive payments could become relevant. Taking those variables into account BAG calculates the financial impact of this risk to be about EUR 100 million.

**Cost of response to risk**

400000

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

To reduce the magnitude of this climate-related regulatory risk BAG is conducting a thorough analysis of the regulatory framework and its interpretation as well as its own situation and options. This includes the involvement of external law firms and external expertise to assess the situation and help BAG plead its position. CASE STUDY: To address this risk BAG has made adequate provisions in the balance sheet. Also, since the start of its participation in the capacity layer model, which is now being contested in terms of EEG apportionment exemption, BAG has endeavored to provide full transparency to the authorities. These efforts for transparency include informing the responsible transmission system operator about the specifics of the set-up for own energy generation at the beginning of the capacity layer model in 2008 and full disclosure of all requested details regarding the set-up until now. IMPLEMENTATION STATUS: Implemented and ongoing. COST CALCULATION: The total costs for external counsel in this matter come up to about EUR 0.4 million until now. BAG expects additional cost in the future.

**Comment**

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

Yes

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

Opp1

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

Downstream

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development of new products or services through R&D and innovation

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

The agricultural business is strongly tied to the climate. Droughts and precipitation extremes can have severe effects on harvest yields. A climate change-induced change in the frequency of these extreme weather events can lead to an increased demand for products with the capacity to adapt to extreme conditions. This increasing demand is especially relevant for existing Crop Science (CS) products and for CS products in early research phases. Bayer is investing in research which contributes to the alleviation of the agronomic consequences of changing weather patterns, primarily related to an increased occurrence of extreme weather events such as floods, droughts, heat, cold or storms. These factors cause abiotic stress to plants and are responsible for significant yield losses. By using state-of-the-art approaches, Bayer is developing and providing technologies that respond to these challenges by reducing the detrimental effects of biotic and abiotic stress influences during agricultural production. E.g., Bayer

is investing heavily in using precision breeding technologies to develop new varieties of crops which are specifically tailored to grow well in diverse growing conditions. We recently opened a new state-of-the-art glasshouse facility in Arizona where we can simulate growing conditions as the global climate changes. By testing and developing new crop varieties in this facility we are able to accelerate the development of tailored plant varieties for optimized yield and biotic and abiotic stress resistance. Bayer has launched a flood resistant hybrid rice variety in Bangladesh and is working on salinity resistant rice varieties that allow growing this crop in densely populated low land deltas that are invaded by rising sea level and typhoons. Bayer is also engaged in developing dry seeded rice, reducing water requirements where water availability is becoming limiting. Other examples are the insecticide Confidor<sup>TM</sup> Stress Shield<sup>TM</sup> and the fungicide Nativo<sup>TM</sup> which also improve the resilience of crops against drought and the introduction of semi tropical cauliflower varieties adapted to heat stress in Italy. There is also a need for easy and safe application of crop protection products in areas with growing water and soil scarcity. We see an opportunity to serve these needs with an optimized irrigation that enables an optimal use of fertilizers as well as crop protection products through water, decreased labor cost and thus increased resource efficiency

#### Time horizon

Long-term

#### Likelihood

Virtually certain

#### Magnitude of impact

Low

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

Yes, a single figure estimate

#### Potential financial impact figure (currency)

93000000

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

<Not Applicable>

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

<Not Applicable>

#### Explanation of financial impact figure

Financial implications apply to Crop Science as a whole affecting sales of EUR 19.8 billion in 2019, of which crop protection has a major impact with €9.3 billion. The global seed and crop protection market as a whole remained stable in 2019 (0%; 2018: +2%). For Crop Science, we expect sales growth of ~4% (Fx & portf. adj.) for FY 2020.

This expected growth is, amongst others, influenced by the climate. A continued growth of the crop protection demand by 1 % (compared to 2019) would translate into EUR 93 million additional revenues.

#### Cost to realize opportunity

68100000

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

To exploit these opportunities Bayer works on solutions supported by breeding, trait and biological solutions. In 2019, Crop Science invested EUR 2,344 million (2018: EUR 1,950 million) in R+D, which was 44% of R+D spending in the Bayer Group and equivalent to approx. 12% of Crop Science sales. CASE STUDIES: a) To improve irrigation practices, Bayer is comparing current crop protection programs against programs with strong drip delivery component to determine benefits for the grower. We will also work with extension officers from various universities. A new approach called DripByDrip focuses on tailored irrigation solutions enabling targeted use of crop protection products leading to increased yield with fewer resources and inputs. DripByDrip is to be installed on all new Bayer ForwardFarms. b) Together with Ginkgo Bioworks Bayer formed a new company in 2017 focusing on transformational beneficial microbes for plants. The initial activities will focus on nitrogen fixation for non-legumes, minimizing agriculture's environmental impact. DETAILS ON COST CALCULATION: a) So far Crop Science has spent EUR 100,000 since 2015 on DripByDrip trials. b) The Bayer LifeScience Center will invest about EUR 68 million (80 million USD) over the next 4-5 years into the Ginkgo Joint Venture.

#### Comment

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#### Identifier

Opp2

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

Downstream

#### Opportunity type

Products and services

#### Primary climate-related opportunity driver

Development of new products or services through R&D and innovation

#### Primary potential financial impact

Increased revenues resulting from increased demand for products and services

#### Company-specific description

i) CLEAR DESCRIPTION: According to UNEP experts, a potential increase in the mean temperature level as a result of global climate change could promote the reproduction and spread of mosquitoes. This could result in another 40 to 60 million people globally being exposed to the risk of vector-borne diseases like malaria. Every year, malaria afflicts some 250 million people and causes almost 1 million deaths. Therefore, demand for products to treat and control insect borne diseases such as malaria and dengue could rise in affected regions. ii) EFFECT ON BAYER: In light of an expected climate change-related geographic expansion of vector-borne diseases such as malaria, dengue fever, chikungunya and Zika, we expect a growing demand for Bayer vector control solutions. Scientists from Bayer are currently developing new insecticide resistance-breaking substances for control of dengue vectors and recently introduce an approved WHO breakthrough innovation for malaria prevention. These could crucially help stem the spread of malaria and dengue fever into the climate change-affected regions of our planet. In early 2019 Bayer introduced Fludora® Fusion, the first product to combine two modes of action for use in malaria indoor residual spray programs. In 2020 Bayer is planning to introduce a new active substances combination under the trade mark Fludora Comax, to fight dengue fever, primary in APAC and in 2021 in Latin America.

#### Time horizon

Medium-term

#### Likelihood

Virtually certain

#### Magnitude of impact

Low

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

Yes, a single figure estimate

**Potential financial impact figure (currency)**

60000000

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

<Not Applicable>

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

<Not Applicable>

**Explanation of financial impact figure**

Future financial implications may benefit Bayer's Environmental Science business with full year 2019 sales of EUR 994 million. Future financial implications for Bayer will be affected by an increase in demand for Indoor residual Spray which is the primary target of our innovation with potential sales of about EUR 60 million.

**Cost to realize opportunity**

400000

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

To increase likelihood and impact of the described opportunities, Bayer is involved in research partnerships and provides products for vector control. CASE STUDY: Bayer works on joint projects with the Innovative Vector Control Consortium (IVCC), a registered charity in the field of product development and information systems for vector control, formed in 2005 with a grant by the Bill and Melinda Gates Foundation. The Consortium and Bayer currently work on a project targeting a new insecticidal active ingredient that is particularly effective against resistant mosquito strains. This effort has recently progressed into a new development phase. Assuming successful progress through further phases, a new and unique solution effective in controlling insecticide-resistant mosquitoes could be available for use alongside other important tools to improve the impact of malaria control programs. This could also be important in stemming the spread of malaria and dengue into climate change-affected regions of our planet. Bayer made an important contribution to malaria protection by providing Fludora Fusion the first product to combine two modes of action for use in malaria indoor residual spray programs, produced in Africa, e.g. in South Africa for indoor residual spraying against malaria vectors. COSTS: Our contribution of laboratories is worth approx. EUR 400,000. DETAILS ON COST CALCULATION: Within this partnership with IVCC, Bayer opened its library of substances (one of the biggest worldwide and worth some EUR 20 million) representing a major contribution to the IVCC partnership. Bayer also contributes with a state-of-the-art research environment, for example, with laboratories worth approx. EUR 400,000.

**Comment**

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**Identifier**

Opp3

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

Direct operations

**Opportunity type**

Markets

**Primary climate-related opportunity driver**

Other, please specify (Improved reputation and market capitalization)

**Primary potential financial impact**

Increased access to capital

**Company-specific description**

i) CLEAR DESCRIPTION: Worldwide, investors, NGOs and the public are increasingly focusing on how companies are dealing with environmental issues such as climate change and how they are integrating these topics into their business strategies and transparent communication. Strong company performance in these areas can lead to reputational benefits, e.g., attracting investors that take SRI (Socially Responsible Investment) criteria into account. ii) EFFECT ON BAYER: Bayer's positioning as a solution provider in the area of climate protection and adaptation to climate change provides reputational opportunities by contributing to our overall reputation. For example, in 2019 Bayer's inclusion in FTSE4Good, an important sustainability index, was confirmed – further strengthening Bayer's reputation. Bayer also continues to be listed on the MSCI World Low Carbon Target Index, the STOXX® Europe Sustainability Index and the STOXX® Global ESG Impact index. In addition, in 2019 Bayer was again evaluated by CDP as one of the leading international companies in the area of climate protection and was therefore included in CDP's A-List. The opportunities resulting from reputation as an opportunity driver, e.g., affecting Bayer's market capitalization, are already being captured today and are set to grow further as climate awareness continues to rise. For example, a 1% increase in Bayer's stock price would increase the company's market capitalization by around EUR 715 million. Given Bayer's global marketing and sales presence, these opportunities are relevant for Bayer across all major markets. Bayer's commitment to finding solutions for climate change has and will have a positive effect on Bayer's reputation and brand value. Bayer expects to continue to leverage its improved reputation and brand across all divisions. Investors showed an explicit interest in further details on the climate program during investor calls and specifically reacted positively on the commitment to Science based targets.

**Time horizon**

Medium-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Low

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

Yes, a single figure estimate

**Potential financial impact figure (currency)**

715000000

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

<Not Applicable>

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

<Not Applicable>

**Explanation of financial impact figure**

According to various studies, there is a positive correlation between the sustainability performance and the stock price. An increase of Bayer's stock price by 1% would increase the company's market capitalization by around EUR 715 million (based on year-end 2019 market capitalization).

**Cost to realize opportunity**

115000

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

To seize reputational opportunities, Bayer demonstrates its sustainability commitment in climate solutions/community projects. CASE STUDIES: a) With the Bayer ForwardFarming initiative, Bayer cooperates with farmers to demonstrate innovative crop solutions and services for sustainable agriculture. The knowledge platform strives to increase the exchange of know-how, highlight improvements in sustainable agriculture, and facilitate communication between stakeholders. By the end of 2019 the ForwardFarming network expanded to 17 farms, 12 of them in Europe. b) Bayer's innovative weed control technology Sakura (pyroxasulfone) controls critical resistance weeds and ensures continued viability of minimum tillage systems. In 2019, use expanded a further 0.5 mha to treat more than 3.0 Mha of Australia. Together with various partners e.g. universities, we updated/distributed integrated weed control practice programs to farmers including e.g. new web tools to maximise adoption, including a novel geographic mapping tool of resistance development based on industry data. c) Cotton has always been in focus with regard to the environment. Bayer Bollguard 3® Cotton, first introduced in 2015 in Australia, allows introduction of true minimum till practices to the cotton industry. This not only reduces or removes the need for carbon intensive cultivation, but also increases water use efficiencies. COSTS include 25,000 AUD for the various weed resistance education projects (b) and EUR 100,000 for a market survey on cotton (c). Due to confidentiality reasons, costs on our Forward Farming initiative (a) cannot be disclosed. DETAILS ON COST CALCULATION: a) Due to confidentiality reasons, Crop Science cannot publish the costs with regards to our Forward Farming initiative. b) EUR 15,000 (AUD 25,000) c) We spent some EUR 100,000 in a market survey at spinners' level in order to find out more about their needs and priorities.

**Comment**

**C3. Business Strategy**

**C3.1**

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

Yes

**C3.1a**

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

Yes, qualitative

**C3.1b**

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

Climate-related scenarios and models applied	Details
RCP 2.6	<p>IDENTIFICATION OF SCENARIOS: Our HSE and Sustainability managers constantly monitor climate-related academic publications and analyze potential impacts of new insights on Bayer. The scenario RCP 2.6 was identified in the 5th IPCC report. While the report analyzes the consequences of two different scenarios (RCP 2.6 and RCP 8.5) we focused on the RCP 2.6 scenario because the projected levels of global mean temperature increase do not diverge substantially for these two scenarios over the time horizons we considered. We did not alter any of the inputs, assumptions or analytical methods used in the RCP 2.6 scenario as we based our analysis on the scenario's consequences as stated in the 5th IPCC report. TIME HORIZONS: In our scenario analysis we considered a timeframe of up to 10 years. This timeframe of up to 10 years is relevant to our organization BECAUSE it coincides with Bayer's long-term perspective as defined in this year's CDP question C2.1.</p> <p>AREAS CONSIDERED: In this scenario analysis we considered climate change-related physical risks to our sites worldwide including, e.g., extreme weather events. SUMMARY OF RESULTS: Bayer identified 2 relevant drivers of physical risks to our sites: changes in (1) weather extremes and (2) precipitation patterns. The scenario analysis was part of a larger evaluation of the potential impact of those two drivers, which also included, e.g., an analysis of risks reported to the Head of Public Affairs, Science and Sustainability. (1) Bayer operates several sites exposed to the risks of hurricanes or flooding. An evaluation of the last 50 years showed that there were no changes related to our sites' exposure to weather-related risks and there is no indication of a climate change-induced increase of their exposure in the near future based on our scenario analysis. Since the carve-out of Covestro we have even less risk with regard to weather extremes. (2) Even though water shortages due to a change in precipitation patterns could present a risk for water supply at certain sites, Bayer is not significantly affected by this risk. Since the carve-out of Covestro, the risk diminished even more. Water shortages due to climate change are not expected. Summing up, based on the scenario analysis and our accompanying analyses we don't expect significant changes due to climate change in the next 10 years to have the potential to generate substantive negative change in our costs or revenues. IMPACT ON OBJECTIVES/STRATEGY: Despite significantly expanding production, we reduced our absolute greenhouse gas emissions significantly between 1990 and 2015, namely by more than 20%. Although the scenario analysis did not account for physical risks to our sites we want to continue making positive contributions to protecting the climate and managing the effects of climate change on several levels. This includes reducing our production-related emissions with targets related to improving energy efficiency and lowering specific greenhouse gas (GHG) emissions. In addition, we are investigating further potential ways to lower greenhouse gas emissions along the value chain, such as the question of whether state-of-the-art cultivation methods and innovative solutions for precision agriculture contribute to a lower CO2 footprint in agriculture. CASE STUDY: Following the Paris Agreement potential contributions to reaching a 2-degree-scenario were discussed at Bayer. As a result, we adjusted our GHG targets to achieve a 20% reduction in specific GHG emissions by 2020 compared with 2015. In 2019, we further advanced our approach. We committed to ambitious emissions reduction targets through the Science Based Targets initiative (SBTi) by setting a science-based target in line with a 1.5°C future and a 2019 baseline. We aim to make our own production sites carbon-neutral by 2030 and are therefore implementing energy efficiency measures at our sites and increasing the procurement of electricity from renewable sources.</p>

**C3.1d**

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>RATIONALE/INFLUENCE: Climate change influences Bayer's strategy through the annual Strategy Conference process, requiring divisions to explain how global megatrends incl. climate change, affect business. This area of our business is already impacted for some product lines BECAUSE in some product lines we are already introducing new products with regard to the climate change-related opportunities we have identified. This is true, for example, for our new vector-control solutions. TIME HORIZON: Climate-related MID- TO LONG-TERM weather trends influence our Crop Science business and are considered when formulating crop strategies. CASE STUDIES/SUBSTANTIAL STRATEGIC DECISIONS: In light of an expected climate change-related geographic expansion of vector-borne diseases such as malaria, dengue fever, chikungunya and Zika, we expect a growing demand for Bayer vector-control solutions. Bayer made an important contribution to malaria protection by providing Fludora Fusion the first product to combine two modes of action for use in malaria indoor residual spray programs, produced in Africa, e.g. in South Africa for indoor residual spraying against malaria vectors. We expect an increase in demand for indoor residual Spray which is the primary target of our innovation with potential sales of about EUR 60 million. A strategic advantage from our focus on climate solutions arises from climate-smart agricultural solutions which have the potential to avoid emissions such as our biological seed treatment product Acceleron. Under Acceleron, roots grow bigger. Due to bigger roots nutrient availability increases through more efficient uptake with less release of nutrients into the environment and less fertilizer needs. This results in less GHG emissions from fertilizer production, application and runoff/degradation. Through increased plant biomass and better soil health, soil carbon sequestration and humus enrichment increase. We initiated a partnership with the aerospace technology company Planetary Resources to develop new digital farming applications and to improve the efficiency of existing products based on field-zone specific satellite data. Bayer intends to create new agricultural products and improve existing ones leading to higher yields and also more efficient and more environmentally compatible deployment of resources.</p>
Supply chain and/or value chain	No	<p>RATIONALE: This area of our business is not impacted BECAUSE we have not identified substantial climate change-related supply chain risks, such as a substantial increase of extreme weather events like floods or hurricanes due to climate change that could substantially impact our supply chain. Also, Bayer proactively addresses any, not only climate change-related, potential effects of extreme weather events via a thorough risk assessment and transparency along our supply chain to ensure that there is no substantial impact on our supply chain in the future. For Bayer, climate-related supply chain risks are low due to our sustainability-oriented supplier management, storage strategies to mitigate supply fluctuations and our diversified supplier base. Currently, there is no indication that risks due to climate change-related weather extremes increase relevantly at supplier sites. Bayer monitors suppliers and the risk of extreme weather events which might affect them. With the help of a supply chain transparency tool, such risks are identified for individual suppliers. The supply chain transparency tool which Bayer is now using provides a strong visibility of our supply network, including sub-tier suppliers. It allows Bayer to get important information on its global supply chain in order to better assess its vulnerability to natural disasters and other risks. Through these deep insights, Bayer improves its business continuity and minimizes negative impacts on the business. The tool enables risk assessments for each individual supplier regarding environmental, financial, safety and labor regulations. A natural disaster index indicates the risk related to extreme weather events, such as floods, cyclones or hurricanes. Through a very large database of online sources, the system detects earliest indicators of company-specific risks and monitors those. Real-time alerts on potentially disrupting events containing details of the event as well as potentially affected materials and products allow Bayer a proactive risk assessment. For example, for a certain supplier located in Japan, the risk of natural disasters is relatively high. Thus, Bayer closely monitors this risk and ensures that we have further suppliers, located in other countries which could supply Bayer in case of a disruption due to an extreme weather event.</p>
Investment in R&D	Yes	<p>RATIONALE/INFLUENCE: Our R&amp;D is influenced by climate-related opportunities BECAUSE our core business focuses on climate-related growth areas: Crop Science invested significantly in climate-related R&amp;D and is working on the marketing of climate-related solutions that help plants cope with external stress factors, e.g. flooding. In all crops where we have a breeding program, we strive to develop seeds that will perform at a high level in a variety of abiotic environments. Our researchers are working to increase in particular the yield potential of crop plants, but also quality potential, e.g. by improving the profile of rapeseed oil. In the area of cereal crops we invest in new technologies (e.g. wheat breeding and trait research) on the basis of the threat of climate change to develop genetics better able to mitigate these threats. We also consider chemical and biological solutions which could contribute to this mitigation in addition to any intrinsic pest, weed or disease activity. TIME HORIZON: Our R&amp;D has a LONG-TERM perspective. CASE STUDIES/STRATEGIC DECISIONS: To exploit climate-related business opportunities and reduce agriculture's carbon footprint Bayer decided to join forces with Ginkgo Bioworks. Bayer formed a new company focusing on transformational beneficial microbes for plants. The initial activities focus on nitrogen fixation minimizing agriculture's environmental impact. Environmental benefits of the proposed technology are a reduction of the emission of nitrous oxide (greenhouse gas) from nitrogen fertilizers and of the consumption of fossil fuels for the production of nitrogen fertilizer and the application of fertilizer. Fertilizer nitrogen has become a major input in crop production and is critical for global food supply. N-fixation for non-legumes remains a key challenge in terms of efficiency and environmental impact. The Bayer Life Science Center will invest 80 million USD (EUR 68 mio.) over the next 4-5 years into the Ginkgo Joint Venture. We entered into several research partnerships, e.g. with IPK Gatersleben evaluating wheat plants with altered carbon assimilation allocation and partitioning; the New Mexico Consortium to further develop carbon concentrating mechanism and optimized antenna size for increased radiation use efficiency; and with UCSD to manipulate gas exchange and CO2 regulation of stomatal conductance and density.</p>
Operations	Yes	<p>RATIONALE/INFLUENCE: Our operations are impacted BECAUSE since the launch of Bayer's Climate Program in 2007, setting ambitious GHG emission-reduction targets and driving initiatives to achieve them have become an integral part of Bayer's sustainability strategy, reducing exposure to climate-related regulatory risks. E.g., in 2019, we have set ourselves the new target of making our own production sites carbon-neutral by 2030. Bayer's Climate strategy is discussed in the annual StrategyConference (StraCo) and approved by the Board. Climate change also influenced our communication strategy: targets and measures are an integral part of Bayer's Annual Report. These processes ensure that climate change aspects are considered in the further development of our business strategy. TIME HORIZON: Our CO2 reduction targets and measures have a mid- to long-term horizon. CASE STUDY / STRATEGIC DECISIONS RESULTING IN A CHANGE IN OPERATIONAL PRACTICES: One important decision was the development of the BAYER CLIMATE CHECK used to identify CO2 savings potentials in production plants. We have been able to continuously improve our energy efficiency, primarily through production and process innovations and introducing energy management systems. Despite significantly expanding production, we reduced our absolute GHG emissions significantly between 1990 and 2015 by more than 20%. Following the Paris Agreement, we set more ambitious TARGETS: an improvement of 10% in energy efficiency and a 20% reduction in specific greenhouse gas emissions by 2020 compared with 2015. In 2019, we further advanced our approach. We have set ourselves the target of MAKING OUR OWN PRODUCTION SITES CARBON-NEUTRAL by 2030, and are therefore implementing further energy efficiency measures at our sites. We will offset the remaining emissions we produce by purchasing certificates from certified climate protection projects that satisfy recognized quality standards. To ensure that our targets are in line with the goal of the Paris Agreement, we have JOINED THE SCIENCE BASED TARGETS INITIATIVE. We also made the decision, that all Bayer sites must introduce an HSE MANAGEMENT SYSTEM that complies with recognized international standards e.g. ISO 14001, ISO 45001 or ISO 50001. Our goal is to implement this requirement for the entire company by March 2021.</p>

C3.1e

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Direct costs Indirect costs Capital expenditures Capital allocation	DIRECT AND INDIRECT COSTS: This area of our financial planning process has been impacted for some facilities, BECAUSE the regulatory risks we have identified have been implicitly considered in our projections for the development of our energy cost within the financial budget that is developed during our financial planning cycle and approved in our Operational Planning Conference with a TIME HORIZON of 3 years. CASE STUDY: Relevant in this context are the direct and indirect risks from current legislative discussions in the EU which are expected to further increase carbon prices. In this respect, the EU Emissions Trading Scheme (ETS) is the main regulatory framework that poses a risk to the European industry. The EU ETS could influence Bayer indirectly, through our supply chain with regard to energy supply, as we expect the prices for our purchased energy to rise and also directly, through our own energy generation facilities participating in the EU ETS. Current trends in certificate price appear to be consistent with the regulator's aim for a much higher certificate price in order to effectively realize steering of energy generation according to climate requirements. Between 2019 and 2022, Bayer expects total costs of EUR 30-55 million due to the possible continuous tightening of the EU ETS. MAGNITUDE OF IMPACT: In 2019, less than 5 percent of our total operational spend was on energy. Accordingly, THE IMPACT OF THE CLIMATE CHANGE-RELATED REGULATORY RISKS ON OUR PROJECTED OPERATING COST IS LOW. CAPITAL EXPENDITURES AND ALLOCATIONS have been impacted for some product lines, BECAUSE climate-related opportunities have factored into strategic decisions in Crop Science product lines. E.g. Bayer is investing in research alleviating the agronomical consequences of changing weather patterns, primarily related to an increased occurrence of extreme weather events. We have launched recently in Bangladesh a flooding resistant hybrid rice and are working on salinity resistant ones that allow growing this crop in densely populated low land deltas that are invaded by rising sea level and typhoons. We are also engaged in developing dry seeded rice, a new cropping system that reduces water requirements where water availability is becoming limiting. Another example is the insecticide Confidor <sup>TM</sup> Stress Shield <sup>TM</sup> which improves the resilience of crops against other abiotic stresses such as increased salinity. Also, Bayer decided to form a joint venture with Ginkgo Bioworks focusing on nitrogen fixation for non-legumes, minimizing agriculture's environmental impact. The Bayer Life Science Center will invest 80 million USD over the next 4-5 years into the Ginkgo Joint Venture. TIME HORIZON: Preparing for the annual Strategy Conference, the Division develops an expenditure plan using a bottom-up process on the basis of individual projects incl. projects driven in part by the climate change-related opportunities. In the Strategy Conference the divisions present their strategic options including the development of the CapEx portfolio over the current and 2 subsequent years.

**C3.1f**

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

**C4. Targets and performance**

**C4.1**

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

Absolute target

**C4.1a**

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

**Target reference number**

Abs 1

**Year target was set**

2019

**Target coverage**

Company-wide

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

Scope 1+2 (market-based)

**Base year**

2019

**Covered emissions in base year (metric tons CO<sub>2</sub>e)**

3710000

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

100

**Target year**

2029

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

42

**Covered emissions in target year (metric tons CO<sub>2</sub>e) [auto-calculated]**

2151800

**Covered emissions in reporting year (metric tons CO<sub>2</sub>e)**

3710000

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

0

**Target status in reporting year**



New

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

Yes, this target has been approved as science-based by the Science-Based Targets initiative

**Please explain (including target coverage)**

In November 2019, Bayer committed itself to the Science Based Target Initiative (SBTi). In line with this, Bayer has developed and set itself the target "to reduce absolute Scope 1 and Scope 2 GHG emissions by 42 % by 2029 from a 2019 base year." Bayer has submitted this target to the SBTi on 15th June 2020. Bayer achieved the status "target set" by the SBTi within 2020. This target aims to keep Bayer's emissions from Scope 1 and 2 in line with a global temperature raise below 1.5°C.

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**Target reference number**

Abs 2

**Year target was set**

2019

**Target coverage**

Company-wide

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

Scope 3 (upstream)

**Base year**

2019

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

8812000

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

88.4

**Target year**

2029

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

12.3

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

7728124

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

8812000

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

0

**Target status in reporting year**

New

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

Yes, this target has been approved as science-based by the Science-Based Targets initiative

**Please explain (including target coverage)**

In November 2019, Bayer committed itself to the Science Based Target Initiative (SBTi). In line with this, Bayer has developed and set itself the target "to reduce absolute Scope 3 GHG emissions from purchased goods and services, capital goods, fuel and energy related activities, upstream transportation & distribution, and business travel by 12.3 % by the end of 2029 from a 2019 base year." Bayer has submitted this target to the SBTi on 15th June 2020. Bayer achieved the status "target set" by the SBTi within 2020. This target aims to keep Bayer's emissions from Scope 3 in line with a global temperature raise below 2°C.

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C4.2

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

Target(s) to increase low-carbon energy consumption or production

Other climate-related target(s)

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C4.2a

**(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.**

**Target reference number**

Low 1

**Year target was set**

2019

**Target coverage**

Company-wide

**Target type: absolute or intensity**

Absolute

**Target type: energy carrier**

Electricity

**Target type: activity**

Consumption

**Target type: energy source**

Renewable energy source(s) only

**Metric (target numerator if reporting an intensity target)**

Please select

**Target denominator (intensity targets only)**

<Not Applicable>

**Base year**

2019

**Figure or percentage in base year**

2

**Target year**

2029

**Figure or percentage in target year**

96

**Figure or percentage in reporting year**

2

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

0

**Target status in reporting year**

New

**Is this target part of an emissions target?**

Yes, this target is part of our emissions reduction target to reduce absolute Scope 1 and Scope 2 GHG emissions by 42 % by 2029 from a 2019 base year (see target Abs 1 in question C4.1a). Bayer has submitted this target to the SBTi on 15th June 2020. Bayer expects to achieve the status "target set" by the SBTi within 2020. This target aims to keep Bayer's emissions from Scope 1 and 2 in line with a global temperature raise below 1.5°C.

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

**Please explain (including target coverage)**

In 2019, Bayer set and published the new target to achieve 100% carbon neutral operations through energy efficiencies, shift to green energy, and compensation. This includes our low-carbon energy consumption target to increase our share of renewable energy purchase to 100%. We aim to achieve this through renewable PPA's (Power Purchase Agreement) and EAC (Energy Attribute Certificate) purchase. Our energy consumption is made up of energy purchases, totaling approx. 96% of total consumption, and our highly efficient combined heat and power generation processes, which are responsible for the remaining 4% of total consumption.

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C4.2b

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**(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.**

**Target reference number**

Oth 1

**Year target was set**

2019

**Target coverage**

Business division

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Engagement with customers	Other, please specify (kg CO2e)
---------------------------	---------------------------------

**Target denominator (intensity targets only)**

Other, please specify (Per kg crop produced on the field)

**Base year**

2019

**Figure or percentage in base year**

100

**Target year**

2030

**Figure or percentage in target year**

70

**Figure or percentage in reporting year**

100

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

0

**Target status in reporting year**

New

**Is this target part of an emissions target?**

No, this target is not part of our emissions target.

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

**Please explain (including target coverage)**

In 2019, we set the goal to reduce the greenhouse gas footprint of in-field crop production where our products are used, by 30%. To this end, Bayer will help farmers apply more sustainable practices, such as reducing tillage to help sequester carbon in the soil, and ensuring the more precise use of crop protection and fertilizer through product innovation and digital tools. Base year and target figures are given in % i.e. 100% representing our GHG footprint of in-field crop protection in 2019 with estimated total emissions of 100 million t CO2e.

**C4.3**

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

Yes

**C4.3a**

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

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	1	3
To be implemented*	0	0
Implementation commenced*	13	6539
Implemented*	120	9072
Not to be implemented	0	0

**C4.3b**

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

**Initiative category & Initiative type**

Energy efficiency in buildings	Insulation
--------------------------------	------------

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

660

**Scope(s)**

Scope 1  
Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

65000

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

1160000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

11-15 years

**Comment**

In 2019, several projects have been implemented with insulation improvements e.g. through the reconstruction of roofs.

**Initiative category & Initiative type**

Energy efficiency in buildings	Lighting
--------------------------------	----------

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

2081

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

225000

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

1537000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

6-10 years

**Comment**

In 2019, several projects have been implemented to change office lighting bolts to LED and to modify the timing of common areas lighting schedules.

**Initiative category & Initiative type**

Energy efficiency in buildings	Heating, Ventilation and Air Conditioning (HVAC)
--------------------------------	--------------------------------------------------

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

566

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

208000

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

63000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

6-10 years

**Comment**

In 2019, several projects have been implemented with HVAC-Optimizations e.g. improving the HVAC control in a warehouse.

**Initiative category & Initiative type**

Energy efficiency in buildings	Heating, Ventilation and Air Conditioning (HVAC)
--------------------------------	--------------------------------------------------

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

559

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

112000

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

610000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

In 2019, several projects have been implemented with HVAC-Optimizations e.g. adapted operation of HVAC.

**Initiative category & Initiative type**

Energy efficiency in buildings	Heating, Ventilation and Air Conditioning (HVAC)
--------------------------------	--------------------------------------------------

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

58

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

7000

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

435000

**Payback period**

11-15 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

In 2019, several projects have been implemented with HVAC-Optimizations e.g. adapted operation of HVAC.

**Initiative category & Initiative type**

Energy efficiency in buildings	Maintenance program
--------------------------------	---------------------

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

60

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

12000

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

51000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

In 2019, two projects have been implemented by application of leak detection in pressurized air systems.

**Initiative category & Initiative type**

Energy efficiency in buildings	Motors and drives
--------------------------------	-------------------

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

86

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

22000

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

690000

**Payback period**

11-15 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

In 2019, several motors have been substituted by more efficient models.

**Initiative category & Initiative type**

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

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

4905

**Scope(s)**

Scope 1

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

727000

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

4521000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

6-10 years

**Comment**

In 2019, several projects have been implemented with process optimizations like heat recovery, pinch pointing, effectiveness of steam generation.

**Initiative category & Initiative type**

Low-carbon energy generation	Solar PV
------------------------------	----------

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

97

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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

24000

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

147000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

In 2019, two projects have been implemented in which a Solar panel was installed above the administration building to generate electricity.

### C4.3c

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

Method	Comment
Employee engagement	Most global production plants with 85% of energy consumption are staffed with Site Energy Officers who are in charge of managing energy efficiency tasks and the energy management systems. We are also lowering emissions in nonproductive areas. These include our Sustainable Fleet initiative and infrastructure of charging stations. Bike sharing and car sharing for all employees have also been launched. At some sites public transport season tickets are available at reduced rates.
Internal incentives/recognition programs	Emission reduction activities are also driven by energy targets within individual performance targets that are set to determine the variable salary component as part of our short-term incentive program. Also, emission reductions are driven by our internal employee ideas pool, which rewards ideas for improving energy efficiency.

### C4.5

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

Yes

### C4.5a

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

**Level of aggregation**

Company-wide

**Description of product/Group of products**

Bayer has introduced several technologies to decrease the carbon footprint of crops by reducing the inputs used during crop production and increasing the yield. Among these new technologies, Climate FieldView™ digital agriculture platform provides farmers with centralized field data management, visualization and reporting that creates actionable agronomic insights for data-driven decisions to optimize fertility and seeding management. The Nitrogen Management Tool (NMT) which is part of the Climate FieldView™ digital agriculture platform is a decision support system which helps to reduce the nitrogen fertilizer application. Nitrogen fertilizers have an energy-intensive production process which mostly consumes fossil fuels and application of nitrogen fertilizers induces nitrous oxide, dinitrogen and ammonia emissions from soil as well as nitrate leaching. Among soil emissions, N<sub>2</sub>O has the highest global warming potential (GWP) which is nearly 265 times more than GWP of CO<sub>2</sub>. In most cases, nitrogen fertilizers are applied in excess of crop needs such that almost half of the N fertilizer is taken up by crops during growing season and the other half is prone to loss.

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

Avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (Cradle-to-farm gate life cycle assessment (LCA))

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

0

**% of total portfolio value**

<Not Applicable>

**Asset classes/ product types**

<Not Applicable>

**Comment**

The methodology of this study followed the ISO 14040 methods for conducting an attributional LCA. Total net carbon dioxide reductions of 33.3 kgCO<sub>2</sub>/tonne corn or 0.059 tCO<sub>2</sub>/ha. Across the 7.45 million ha assumed to adopt Nitrogen Management Tool (NMT) this would result in a total annual carbon dioxide savings of 2.7 million tonnes. Since NMT is part of the FieldView™ offering we do not calculate revenue for this specific element.

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**Level of aggregation**

Company-wide

**Description of product/Group of products**

The introduction of the US corn seed treatment (inoculant) containing spores of the naturally occurring soil fungus called *Penicillium bilaiae* (P.b.). P.b is found to reduce the impact of corn production in all investigated categories, particularly for global warming and eutrophication where reductions of 9-15% are observed (base case results for Minnesota and North Dakota). More modest improvements (2-4%) are estimated for the remaining impact categories. In terms of global warming, the impact of producing one ton of corn was reduced by 33-39 kg CO<sub>2</sub>e (base case results) when applying the P.b. inoculant.

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

Avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (life cycle assessment (LCA))

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

21

**% of total portfolio value**

<Not Applicable>

**Asset classes/ product types**

<Not Applicable>

**Comment**

Use of P.b. in US corn production provides significant environmental benefits with no trade-offs. By extrapolation of the base case results for Minnesota and North Dakota, it is estimated that the P.b. inoculant could reduce GHG emissions by 3.8 million t CO<sub>2</sub>e if applied on all US corn fields. This product is part of our crop protection portfolio with sales of EUR 9.3 billion in 2019. As we cannot disclose the share of revenue of individual products, we have provided the share of revenue of the crop protection business of BAG Group sales.

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## C5. Emissions methodology

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### C5.1

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

**Scope 1**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

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

2030000

**Comment**

**Scope 2 (location-based)**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

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

1770000

**Comment**

**Scope 2 (market-based)**

**Base year start**

January 1 2019

**Base year end**

December 31 2019

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

1680000

**Comment**

**C5.2**

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

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

**C6. Emissions data**

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**C6.1**

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

**Reporting year**

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

2030000

**Start date**

<Not Applicable>

**End date**

<Not Applicable>

**Comment**

**C6.2**

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

**Row 1**

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We are reporting a Scope 2, market-based figure

**Comment**

## C6.3

### (C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO<sub>2</sub>e?

#### Reporting year

##### Scope 2, location-based

1770000

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

1680000

##### Start date

<Not Applicable>

##### End date

<Not Applicable>

##### Comment

## C6.4

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

No

## C6.5

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

#### Purchased goods and services

##### Evaluation status

Relevant, calculated

##### Metric tonnes CO<sub>2</sub>e

6633000

##### Emissions calculation methodology

"estell 6" was applied to calculate all relevant GHG emissions for purchased goods and services. estell is a methodology and tool developed by the consulting firm Sustain. It uses a detailed multi-regional environmentally-extended input output (EEIO) database (see GHG Protocol-Scope 3 Standard, chapter 7) based on the input-output table of the OECD (<https://www.oecd.org/sti/ind/inter-country-input-output-tables.htm>) with additional inputs from BEA ([www.bea.gov](http://www.bea.gov)), World Bank indicators and EXIOBASE ([www.exiobase.eu](http://www.exiobase.eu)). Activity data were taken from the procurement system of Bayer as purchasing volume in euros, differentiated by cost types and country of origin. To determine the emissions, procurement volumes by cost type and country were allocated to economic sectors and multiplied with estell's emission factors for each unit of demand in every economic sector and region. To determine emissions from purchased goods and services, all purchase volumes have been considered except capital goods, fuel & energy, transport, business travel and waste related cost types. estell's emission factors include all upstream (cradle-to-gate) emissions of all the relevant process steps for each good or service. The model hereby restricts within the supply chain to emissions from primary inputs in order to exclude emission sources with negligible potential to influence GHG reductions (see also Scope 3 Accounting and Reporting Standard p.31, minimum boundary) and to align the system boundary to models based on LCA. Primary inputs are production related inputs and transports but without further non-production related inputs. The model uses GWP values from IPCC's AR 5 (2013) for a 100-year time horizon including carbon feedbacks .

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

##### Please explain

#### Capital goods

##### Evaluation status

Relevant, calculated

##### Metric tonnes CO<sub>2</sub>e

496000

##### Emissions calculation methodology

"estell 6" was applied to calculate all relevant GHG emissions for capital goods. estell is a methodology and tool developed by the consulting firm Sustain. It uses a detailed multi-regional environmentally-extended input output (EEIO) database (see GHG Protocol-Scope 3 Standard, chapter 7) based on the input-output table of the OECD (<https://www.oecd.org/sti/ind/inter-country-input-output-tables.htm>) with additional inputs from BEA ([www.bea.gov](http://www.bea.gov)), World Bank indicators and EXIOBASE ([www.exiobase.eu](http://www.exiobase.eu)). Activity data were taken from the procurement system of Bayer as purchasing volume in euros, differentiated by cost types and country of origin. To determine supply chain emissions procurement volumes by cost type and country were allocated to economic sectors and multiplied with estell's emission factors for each unit of demand in every economic sector and region. To determine emissions from capital goods, only purchasing volumes from according cost types (taxonomy of Bayer) have been considered. estell's emission factors include all upstream (cradle-to-gate) emissions of all the relevant process steps for each good or service. The model hereby restricts within the supply chain to emissions from primary inputs in order to exclude emission sources with negligible potential to influence GHG reductions (see also Scope 3 Accounting and Reporting Standard p.31, minimum boundary) and to align the system boundary to models based on LCA. Primary inputs are production related inputs and transports but without further non-production related inputs. The model uses GWP values from IPCC's AR 5 (2013) for a 100-year time horizon including carbon feedbacks.

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

##### Please explain

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

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

717000

### Emissions calculation methodology

In this category, Bayer considers GHG emissions from (A) Upstream emissions of purchased fuels and (B) Upstream emissions of purchased electricity and steam (E+S); (C) Transmission and Distribution (T+D) losses are considered by the emission factors applied in (A) and (B). (i) Data types and sources: (A) Bayer retrieved the energy content (TJ) per primary energy source (energy generation and vehicle fleet consumption) type as well as purchased E+S from its Bayer site information system (BaySIS). The corresponding emission factors were taken from Sphera's GaBi 2020 product sustainability database. We cover the GHG impact of every source of energy (fuel, electricity, and steam) to at least 80% with national specific emission factors. Missing percentages are extrapolated based on the available country and fuel specific factors. National emission factors of fuels, electricity mixes and steam are taken from Sphera's GaBi 2020 product sustainability database. Those emission factors include already T+D losses of fuel, electricity and steam provision. (ii) Methodologies, assumptions and allocation methods: The methodology used is based on the GHG Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Using the average data method, the emissions are calculated by applying associated emission factors to specific activity data.

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

### Please explain

## Upstream transportation and distribution

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

663000

### Emissions calculation methodology

Here we consider GHG emissions from (A) all in- and out-bound transport and logistic based emissions from up- and down-stream paid by Bayer and (B) warehousing paid by Bayer. (i) Data sources: (A) Calculations are based on mass-related transport data taken from SAP Business Warehouses and SAP, JDA TMS and other data sources for the respective divisions globally. Bayer uses the CEFIC Recommended Emission Factors (Measuring and Managing CO<sub>2</sub> Emissions of European Chemical Transport, Edinburgh, 2010) and commercial tools (e.g., Google Geo Tools) for distance calculations enabling accurate assumptions in the relevant mode of transports. (B) Activity data were taken from the procurement system of Bayer as purchasing volume in euros, differentiated by cost types and country of origin. To determine the emissions, procurement volumes by cost type and country were allocated to economic sectors and multiplied with estell's emission factors for each unit of demand in every economic sector and region. (ii) Methodologies: (general) Bayer does not own or control vehicles or facilities from which sold products are transported or distributed. Following the GHG Protocol's "Technical Guidance for Calculating Scope 3 Emissions (version 1.0)" for this category 9 (Downstream Transportation and Distribution) (page 102), Bayer's outbound transportation and distribution services that are purchased by us are excluded from category 9 and included in category 4. (A) Bayer used the CEFIC methodology and the GHG Protocol Standard to calculate upstream transportation emissions by multiplying metric tons of transported goods from our SAP and JDA systems by the calculated distance per shipment (based on ZIP based geo-data based distance computing or calculated or estimated with a commercial tool) to obtain ton-km associated with transport operations (mode of transport). This figure was then multiplied by default average emission factors [g CO<sub>2</sub>/ton-km] for the specific mode of transport. (B) "estell 6", a detailed multi-regional environmentally-extended input output (EIO) methodology and tool developed by the consulting firm Systain, the input-output table of the OECD with additional inputs from BEA, World Bank indicators and EXIOBASE, was applied (see GHG Protocol-Scope 3 Standard, chapter 7).

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

### Please explain

## Waste generated in operations

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

337000

### Emissions calculation methodology

(i) Data types and sources: Bayer separates GHG emissions resulting from waste treated by third parties into (A) incineration, (B) landfill, (C) recycling and (D) other; plus (E) emissions from waste water treatment. The amount of waste treated by third parties for the different treatment methods is retrieved from our site information system BaySIS. The combustion factor for incineration (A) was calculated as a weighted average of waste specific emission factors either generated based on site specific waste information or literature data. These specific emission factors were based on carbon content of the waste. The emission factors for waste from landfill (B), other (D) and for wastewater (E) were calculated in line with the GWP from IPCC's AR 5 (2013). (C) In line with the IPCC, Bayer uses an emissions factor of 0 for recycled waste. (ii) Methodologies: The methodology used is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Using the average data method, the emissions are calculated by applying associated emission factors to each waste treatment category. (A) To calculate the emissions associated with incineration, the total amount of waste in this category was multiplied by the average carbon content related combustion emission factor. (B) To calculate the emissions resulting from waste treated in landfills, the total amount of waste in this category was multiplied by the dedicated emissions factor. (C) Emissions from recycling are treated as 0. (D) The small amount of waste which does not fall into categories (A), (B) or (C) is conservatively calculated using the same methodology as for incinerated waste (A). (E) A site-specific analysis of the share of waste water treated by third parties was performed based on information from BaySIS; the emissions were calculated according to IPCC guidelines based on the effluent organic carbon (resulting in CH<sub>4</sub> emissions) and nitrogen (resulting in N<sub>2</sub>O emissions) contents which were retrieved from BaySIS. Note: In our SBTi target form we used IPCC's AR 4; the deviation is not material.

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

### Please explain

## Business travel

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

303000

### Emissions calculation methodology

Data sources: We calculated GHG emissions for three main modes of transport: (A) Air travel (B) Rental cars (C) Train travel. (A) Air travel emissions were calculated according to the DEFRA methodology including radiative force (RF). Data (flight miles, departure/arrival destinations, passenger class) were supplied by our global travel agencies. (B) GHG emissions were directly calculated by the rental car companies: Europcar, Sixt, Enterprise, and National. Due to the COVID-19 pandemic Hertz could not send a report and Hertz's data was extrapolated. The four companies cover 86% of Bayer's global rental car travel. (C) Deutsche Bahn AG provided Bayer with the CO<sub>2</sub> footprint of its business trips by rail in Germany. Data from other rail carriers was not made available to Bayer. For rest of the world we calculated the GHG emissions using the expense share of the railway volume. Methodologies: The methodology used is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard. (A) Flight data from travel agencies were imported into the Business Travel Analyzer tool and clustered according to travel distance (domestic, intracontinental, intercontinental) and service class (economy, premium economy, business, first). Miles traveled in each cluster were multiplied by the corresponding DEFRA emission factor. For data consistency reasons, DEFRA factors with RF were used. Our data covered 99.5% of the total worldwide spend for flights by Bayer employees, the remaining 0.5% were extrapolated according to expenditure. Total air travel emissions amount to approx. 294,000 t CO<sub>2</sub>e. (B) GHG emissions were directly calculated by the rental car companies: Europcar, Sixt, Enterprise, and National. Due to the COVID-19 pandemic Hertz could not send a report and Hertz's data was extrapolated. The four companies cover 86% of Bayer's global rental car travel. Total rental cars emissions amount to approx. 7,000 t CO<sub>2</sub>e (C) The total emissions from train travel amounting to approx. 2,000 t CO<sub>2</sub>e were calculated as a sum of emissions provided by Deutsche Bahn and an estimation for the rest of world. For the latter, we estimated passenger-kilometers proportionally to the number for Germany based on coverage and then multiplied the result with the newest emission factor available from Sphera's GaBi 2020 product sustainability database.

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

#### Please explain

## Employee commuting

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

117000

### Emissions calculation methodology

(i) Data types and sources: Bayer data on total number of employees and employee distribution per region, Bayer data on corporate fleet size, publicly available information on commuting patterns (distance and mode of transport) for Germany and the US, emission factors from Sphera's GaBi 2020 product sustainability database. (ii) Methodologies, assumptions and allocation methods: For two of Bayer's four regions an employee commuting footprint has been calculated, i.e. Europe/Middle East/Africa and North America. For the first using data for Germany and for the second using data from the US. The remaining two regions are an equally-weighted average of Germany and the US. Calculation followed the GHG Protocol standard and guidance. To avoid double counting, Bayer deducts from its total number of employees the number of cars from its corporate fleet. The emissions caused from these by Bayer employees are already included in Bayer's reported Scope 1 emissions.

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

#### Please explain

## Upstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

#### Please explain

In the past Bayer accounted separately 7,000 t CO<sub>2</sub>e emissions for about 1,800 cars which employees have privately leased via Bayer, benefiting from Bayer's purchasing power in the market. These emissions are now included in the category 7 (employee commuting), in line with the GHG Protocol requirements. There are no more emissions that fall into the category Upstream leased assets.

## Downstream transportation and distribution

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

#### Please explain

Bayer does not own or control vehicles or facilities from which sold products are transported or distributed. Hence, following the GHG Protocol's "Technical Guidance for Calculating Scope 3 Emissions (version 1.0)" for this category 9 (Downstream Transportation and Distribution) (page 102), Bayer's outbound transportation and distribution services that are purchased by us are excluded from category 9 and included in category 4 (Upstream transportation and distribution).

## Processing of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### Please explain

Bayer's business model is not based on selling intermediate products that require processing by third parties. Hence, following the GHG Protocol's "Technical Guidance for Calculating Scope 3 Emissions (version 1.0)" (page 106), this category 10 (Processing of Sold Products) is not relevant for Bayer. In potential exceptional cases where downstream emissions associated with sold intermediate products might occur, these downstream emissions are unknown to Bayer and, following section 6.4 of the GHG Protocol's "Corporate Value Chain (Scope 3) Accounting and Reporting Standard", would be eligible for exclusion (page 60). This is also in line with the guidance of the WBCSD's "Guidance for Accounting and Reporting Corporate GHG Emissions in the Chemical Sector Value Chain", which states that "chemical companies are not required to report Scope 3, category 10 emissions, since reliable figures are difficult to obtain, due to the diverse application and customer structure" (page 32).

## Use of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### Please explain

Bayer does not report emissions from the use of sold products since this category is considered not relevant for Bayer's Scope 3 inventory. Analysis of Bayer's product portfolio regarding products containing propellant gases and/or fertilizers showed that Bayer does not sell fertilizers or other product frequently listed with high emissions and the used propellant gases have insignificant emissions of GHG. A recently started reevaluation of the category with relevant experts ranged from no emissions to potentially relevant but still minor even in worst case scenarios. So far no mature-standardized calculation method for our product portfolio is available. This category will be re-evaluated in the future when calculation methods for our product portfolio become more mature.

## End of life treatment of sold products

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

718000

### Emissions calculation methodology

To calculate emissions from end-of-life treatment of sold products, only packaging materials were considered. Further potential GHG emissions resulting from the feedstock would be accounted under category 11 (use of sold products), as the products of Bayer's Life Science businesses (pharmaceuticals, consumer health products, crop protection products, and seeds) do not undergo a dedicated end-of-life treatment. Emissions from end-of-life treatment of packaging are calculated based on the quantities of packaging materials, which are obtained from Bayer's spend map. To calculate emissions from end-of-life treatment of sold packaging materials, packaging materials were clustered, then quantities were multiplied with material-specific emission factors obtained from Sphera's GaBi 2020 product sustainability database.

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

### Please explain

## Downstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### Please explain

Scope 3 emissions resulting from downstream leased assets are not reported because this category is not applicable to Bayer.

**Franchises**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Please explain**

Scope 3 emissions resulting from franchises are not reported because this category is not applicable to Bayer.

**Investments**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Please explain**

Scope 3 emissions resulting from investments are not reported because this category is not applicable to Bayer.

**Other (upstream)**

**Evaluation status**

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Please explain**

**Other (downstream)**

**Evaluation status**

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Please explain**

C6.7

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

No

C6.10

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

**Intensity figure**

0.0000852

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

3710000

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

43545000000

**Scope 2 figure used**

Market-based

**% change from previous year**

23

**Direction of change**

Decreased

**Reason for change**

In 2019 Bayer's total CO2 emissions intensity decreased. In 2019 our total CO2 emissions decreased by approximately 9%. In the same period, Bayer's revenue increased by ca. 19%. Therefore, in 2019, Bayer had a decrease of total specific emissions expressed in metric tons CO2e per revenue of approximately 23%. Part of this decrease is due to EMISSION REDUCTION ACTIVITIES. In 2019, emission reduction activities had a positive impact on our emissions performance. Emission reduction activities included e.g. energy efficiency improvements in production processes and in buildings. These activities included e.g. optimizations with regard to heat recovery, pinch pointing, and effectiveness of steam generation, insulation improvements through the reconstruction of roofs, reduction of leakage, or the installation of a solar panel above the administration building. HVAC optimizations and changing of lighting systems also had an influence. Overall Bayer implemented energy efficiency and emissions reduction projects that resulted in an overall reduction of 9,072 metric tons in CO2 emissions in 2019. Another part of this decrease is due to a changed mix of products sold in 2019 in our agricultural business due to seasonal fluctuations. As the agricultural business was acquired on 7 June 2018 and the data in last year's CDP Report was only included from that date onwards, for a better comparison in this year's CDP Report we calculated the emissions change on a pro forma basis: a full inclusion was assumed for 2018, as if the acquisition of Monsanto and the associated divestments had already taken place as of January 1, 2018.

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**Intensity figure**

35.73

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

3710000

**Metric denominator**

full time equivalent (FTE) employee

**Metric denominator: Unit total**

103824

**Scope 2 figure used**

Market-based

**% change from previous year**

6

**Direction of change**

Decreased

**Reason for change**

In 2019 Bayer's specific emissions expressed in metric tons CO2e per FTE were 35.73. In 2019 our total CO2 emissions decreased by approximately 9%. In the same period Bayer's overall number of FTEs decreased by approximately 4%. Therefore, in 2019, Bayer had a decrease of total specific emissions expressed in metric tons CO2e per FTE of approximately 6%. Part of this decrease is due to EMISSION REDUCTION ACTIVITIES. In 2019, emission reduction activities had a positive impact on our emissions performance. Emission reduction activities included e.g. energy efficiency improvements in production processes and in buildings. These activities included e.g. optimizations with regard to heat recovery, pinch pointing, and effectiveness of steam generation, insulation improvements through the reconstruction of roofs, reduction of leakage, or the installation of a solar panel above the administration building. HVAC optimizations and changing of lighting systems also had an influence. Overall Bayer implemented energy efficiency and emissions reduction projects that resulted in an overall reduction of 9,072 metric tons in CO2 emissions in 2019. Another part of this decrease is due to a changed mix of products sold in 2019 in our agricultural business due to seasonal fluctuations. As the agricultural business was acquired on 7 June 2018 and the data in last year's CDP Report was only included from that date onwards, for a better comparison in this year's CDP Report we calculated the emissions change on a pro forma basis: a full inclusion was assumed for 2018, as if the acquisition of Monsanto and the associated divestments had already taken place as of January 1, 2018.

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## C7. Emissions breakdowns

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### C7.1

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

Yes

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#### C7.1a

**(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	1972000	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	2000	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	7000	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	22000	IPCC Fourth Assessment Report (AR4 - 100 year)
PFCs	0	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	0	IPCC Fourth Assessment Report (AR4 - 100 year)
NF3	0	IPCC Fourth Assessment Report (AR4 - 100 year)
Other, please specify (CCI3F2, CCI2F2, CHClF2, CH3Cl, CH3Br, CCl4)	27000	IPCC Fourth Assessment Report (AR4 - 100 year)

## C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
United States of America	1306000
Belgium	189000
Germany	155000
India	55000
Brazil	50000
Argentina	44000
Mexico	40000
France	17000
Spain	10000
China	4000
Other, please specify (Rest of World)	160000

## C7.3

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

By business division

## C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
Pharmaceuticals	200000
Consumer Health	23000
Crop Science	1698000
Others: Car fleet, Headquarter Mexico	109000

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

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

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



C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
United States of America	1080000	1058000	3301000	33700
Germany	424000	352000	1334000	1600
India	44000	44000	122000	0
Brazil	29000	27000	0	0
Belgium	3000	3000	0	0
China	38000	38000	0	0
Argentina	26000	26000	0	0
Mexico	32000	32000	0	0
Spain	9000	14000	0	0
France	4000	3000	0	0
Other, please specify (Rest of the world)	81000	83000	283000	23300

C7.6

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

By business division

C7.6a

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

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Pharmaceuticals	193000	187000
Consumer Health	85000	89000
Crop Science	1492000	1403000
Others	0	1000

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

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

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

C-CH7.8

(C-CH7.8) Disclose the percentage of your organization's Scope 3, Category 1 emissions by purchased chemical feedstock.

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology
---------------------	------------------------------------------------------------------	---------------------------------

C-CH7.8a

(C-CH7.8a) Disclose sales of products that are greenhouse gases.

	Sales, metric tons	Comment
Carbon dioxide (CO2)		
Methane (CH4)		
Nitrous oxide (N2O)		
Hydrofluorocarbons (HFC)		
Perfluorocarbons (PFC)		
Sulphur hexafluoride (SF6)		
Nitrogen trifluoride (NF3)		

C7.9

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

C7.9a

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

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	13129	Decreased	0.33	i) Calculation: In 2019, the increase in consumption of renewable energy of 192 teraJ (211-19=192) led to a decrease of 0.013129 million t CO2e (sum of site-level renewable energy consumption*site-level market-based emission factor). Our total Scope 1 and Scope 2 emissions in the previous year were 3.998704 million t CO2e, therefore we arrived at a reduction of 0.33% through $(-0.013129 / 3.998704) * 100 = -0.33\%$ (i.e. a 0.33% decrease in emissions). As the data in last year's CDP Report from the acquired agricultural business was only included from 7 June 2018 onwards, for a better comparison in this year's CDP Report we calculated the emissions change on a pro forma basis assuming a full inclusion for 2018, as if the acquisition of Monsanto and the associated divestments had already taken place as of January 1, 2018 (for this reason the decrease due to change in renewable energy consumption reported in this table is slightly lower compared to a calculation based on the pro rata figures from last year's CDP report). ii) Explanation: In 2018, two Bayer sites consumed renewable energy. In 2019, six sites consumed renewable energy, the two sites from 2018 increased their consumption. This led to a total reduction of 0.33 % due to change in renewable energy consumption.
Other emissions reduction activities	307456	Decreased	7.68	i) Calculation: In 2019, 0.307456 million t CO2e were reduced due to other emissions reduction activities. Our total Scope 1 and Scope 2 emissions in the previous year were 3.998704 million t CO2e, therefore we arrived at a reduction of 7.68% through $(-0.307456 / 3.998704) * 100 = -7.68\%$ (i.e. a 7.68% decrease in emissions). As the data in last year's CDP Report from the acquired agricultural business was only included from 7 June 2018 onwards, for a better comparison in this year's CDP Report we calculated the emissions change on a pro forma basis assuming a full inclusion for 2018, as if the acquisition of Monsanto and the associated divestments had already taken place as of January 1, 2018 (for this reason the decrease due to emissions reduction activities reported in this table is slightly lower compared to a calculation based on the pro rata figures from last year's CDP report). ii) Explanation: Part of this decrease is due to EMISSION REDUCTION ACTIVITIES. In 2019, emission reduction activities had a positive impact on our emissions performance. Emission reduction activities included e.g. energy efficiency improvements in production processes and in buildings. These activities included e.g. optimizations with regard to heat recovery, pinch pointing, and effectiveness of steam generation, insulation improvements through the reconstruction of roofs, reduction of leakage, or the installation of a solar panel above the administration building. HVAC optimizations and changing of lighting systems also had an influence. Another part of this decrease is due to a changed mix of products sold in 2019 in our agricultural business due to seasonal fluctuations.
Divestment	68755	Decreased	2.36	i) Calculation: In 2019, the divestment of several sites led to a decrease of 0.068755 million t CO2e $(0 - 0.068755 = -0.068755 \rightarrow -0.068755 / 2.91 * 100\% = -2.36\%)$ . ii) Explanation: In 2018, Bayer sold six Crop Science sites to BASF. In addition, the sale of our Animal Health was agreed in 2019 and was therefore already considered a divestment. This led to a total reduction of 2.36 % due to divestment based on 2018 figures as reported in last year's Annual Report on a pro-rata basis (i.e. considering Monsanto emissions only from 7 June 2018 onwards).
Acquisitions	1040261	Increased	35.7	i) Calculation: In 2019, the agriculture business acquired in 2018 led to an increase of 1.040261 million t CO2e $(2.587982 - 1.547721 \rightarrow 1.040261 / 2.91 * 100\% = 35.7\%)$ . ii) Explanation: In 2018, Bayer acquired Monsanto company and included Monsanto emissions on a pro rata basis for the period following the acquisition in June 2018. In 2019, emissions from this business are included for the first time for the full year. This led to an increase of 35.7% due to acquisitions compared to our emissions as reported in last year's Annual Report on a pro-rata basis (i.e. considering Monsanto emissions only from 7 June 2018 onwards).
Mergers		<Not Applicable >		
Change in output		<Not Applicable >		
Change in methodology		<Not Applicable >		
Change in boundary		<Not Applicable >		
Change in physical operating conditions		<Not Applicable >		
Unidentified		<Not Applicable >		
Other		<Not Applicable >		

**C7.9b**

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

Market-based

**C8. Energy**

**C8.1**

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

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

**C8.2**

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

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	Yes
Generation of electricity, heat, steam, or cooling	Yes

**C8.2a**

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	193000	5530000	5723000
Consumption of purchased or acquired electricity	<Not Applicable>	59000	3298000	3357000
Consumption of purchased or acquired heat	<Not Applicable>	0	0	0
Consumption of purchased or acquired steam	<Not Applicable>	0	1481000	1481000
Consumption of purchased or acquired cooling	<Not Applicable>	0	202000	202000
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	252000	10511000	10763000

**C-CH8.2a**

**(C-CH8.2a) Report your organization's energy consumption totals (excluding feedstocks) for chemical production activities in MWh.**

	Heating value	Total MWh
Consumption of fuel (excluding feedstock)	Please select	
Consumption of purchased or acquired electricity	<Not Applicable>	
Consumption of purchased or acquired heat	<Not Applicable>	
Consumption of purchased or acquired steam	<Not Applicable>	
Consumption of purchased or acquired cooling	<Not Applicable>	
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	
Total energy consumption	<Not Applicable>	

**C8.2b**

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

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	Yes
Consumption of fuel for co-generation or tri-generation	Yes

**C8.2c**

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

**Fuels (excluding feedstocks)**

Anthracite Coal

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

773000

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

0

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

622000

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

151000

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

0

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

0

**Emission factor**

0.1

**Unit**

metric tons CO2 per GJ

**Emissions factor source**

IPCC Guidelines for National Greenhouse Gas 2006

**Comment**

Since 2019, we use standard emission factors when available. If a standard emission factor is not available, a site specific emission factor is used.

---

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

3821000

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

20000

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

552000

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

770000

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

15000

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

2464000

**Emission factor**

0.06

**Unit**

metric tons CO2 per GJ

**Emissions factor source**

IPCC Guidelines for National Greenhouse Gas 2006

**Comment**

Since 2019, we use standard emission factors when available. If a standard emission factor is not available, a site specific emission factor is used.

---

**Fuels (excluding feedstocks)**

Other, please specify (Liquid fuels, waste, biomass, renewable energy, fuel for transportation, other primary energy)

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

1129000

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

5000

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

747000

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

198000

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

7000

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

172000

**Emission factor**

0.07

**Unit**

metric tons CO2 per GJ

**Emissions factor source**

IPCC Guidelines for National Greenhouse Gas 2006

**Comment**

Other includes liquid fuels, waste, and other primary energy sources. Since 2019, we use standard emission factors when available. If a standard emission factor is not available, a site specific emission factor is used.

## C8.2d

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	128000	128000	0	0
Heat	0	0	0	0
Steam	2329000	2329000	0	0
Cooling	6862000	6862000	0	0

## C-CH8.2d

**(C-CH8.2d) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.**

	Total gross generation (MWh) inside chemicals sector boundary	Generation that is consumed (MWh) inside chemicals sector boundary
Electricity		
Heat		
Steam		
Cooling		

## C8.2e

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

**Sourcing method**

Other, please specify (Certificates from energy provider)

**Low-carbon technology type**

Other, please specify (Renewable energy)

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

Latin America (LATAM)

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

3600

**Comment**

In 2019, six sites purchased low-carbon electricity and/ or steam.

**Sourcing method**

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

**Low-carbon technology type**

Hydropower

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

Europe

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

1600

**Comment**

In 2019, six sites purchased low-carbon electricity and/ or steam.

**Sourcing method**

Other, please specify (Certificates from energy provider)

**Low-carbon technology type**

Other, please specify (Renewable energy)

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

Latin America (LATAM)

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

23300

**Comment**

In 2019, six sites purchased low-carbon electricity and/ or steam.

**Sourcing method**

Other, please specify (Certificates from energy provider)

**Low-carbon technology type**

Other, please specify (Renewable energy)

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

Latin America (LATAM)

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

10200

**Comment**

In 2019, six sites purchased low-carbon electricity and/ or steam.

---

**Sourcing method**

Unbundled energy attribute certificates, Renewable Energy Certificates (RECs)

**Low-carbon technology type**

Other, please specify (Renewable energy)

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

North America

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

4800

**Comment**

In 2019, six sites purchased low-carbon electricity and/ or steam.

---

**Sourcing method**

Other, please specify (Certificates from energy provider)

**Low-carbon technology type**

Other, please specify (Renewable energy)

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

Latin America (LATAM)

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

15100

**Comment**

In 2019, six sites purchased low-carbon electricity and/ or steam.

---

**C-CH8.3**

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**(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?**

Please select

**C9. Additional metrics**

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**C9.1**

---

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

**Description**

Waste

**Metric value**

879000

**Metric numerator**

Tons

**Metric denominator (intensity metric only)**

-

**% change from previous year**

55

**Direction of change**

Increased

**Please explain**

**Description**

Other, please specify (Waste used for conversion into energy)

**Metric value**

1000

**Metric numerator**

teraJ

**Metric denominator (intensity metric only)**

-

**% change from previous year**

47

**Direction of change**

Decreased

**Please explain**

C-CH9.3a

**(C-CH9.3a) Provide details on your organization's chemical products.**

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

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

	Investment in low-carbon R&D	Comment
Row 1	Please select	

C10. Verification

C10.1

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

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

C10.1a



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

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

Bayer Sustainability Report 2019.pdf

**Page/ section reference**

Bayer Sustainability Report 2019: Independent Auditor's Report on a Limited Assurance: p. 61f; Assured Scope 1 Emissions on p. 50: 7.3 Air Emissions

**Relevant standard**

ISAE3000

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

100

---

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

Bayer Annual Report 2019.pdf

**Page/ section reference**

Bayer Annual Report 2019: Independent Auditor's Report on Reasonable Assurance: p.227ff; Assured Scope 1 Emissions on p. 59: Greenhouse gas emissions

**Relevant standard**

Other, please specify (§317 HGB and EU Audit Regulation No. 537/2014)

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

100

---

**C10.1b**

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

**Scope 2 approach**

Scope 2 location-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

Bayer Sustainability Report 2019.pdf

**Page/ section reference**

Bayer Sustainability Report 2019: Independent Auditor's Report on a Limited Assurance: p. 61f; Assured Scope 2 location-based Emissions p. 50: 7.3 Air Emissions

**Relevant standard**

ISAE3000

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

100

---

**Scope 2 approach**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

Bayer Sustainability Report 2019.pdf

**Page/ section reference**

Bayer Sustainability Report 2019: Independent Auditor's Report on a Limited Assurance: p. 61f Assured Scope 2 market-based Emissions p. 50: 7.3 Air Emissions

**Relevant standard**

ISAE3000

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

100

---

**Scope 2 approach**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

Bayer Annual Report 2019.pdf

**Page/ section reference**

Bayer Annual Report 2019: Independent Auditor's Report on Reasonable Assurance: p.227ff; Assured Scope 2 market-based Emissions on p. 59: Greenhouse gas emissions

**Relevant standard**

Other, please specify (§317 HGB and EU Audit Regulation No. 537/2014)

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

100

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C10.1c

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

**Scope 3 category**

Scope 3: Business travel

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

Bayer Scope 3 Assurance 2019.pdf

**Page/section reference**

Pages 3-5 : "Independent Practitioner's Report on a Limited Assurance Engagement on Sustainability Information"; Assured Scope 3 emissions on page 9: "Bayer AG Scope 3, Category 6, Business Travel Emission Data 2019"

**Relevant standard**

ISAE 3410

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

100

**C10.2**

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

Yes

**C10.2a**

**(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	Reasonable assurance	Year on year changes in Scope 1 and 2 emissions are described within the Sustainability Report and the Annual Report. The Sustainability Report is verified with a limited assurance by Deloitte. The Annual Report is verified with a reasonable assurance. Thus, Year on Year changes in emissions are included in the verification processes of both reports.
C6. Emissions data	Year on year emissions intensity figure	Limited assurance	Specific GHG emissions (emissions intensity) for the current and the previous reporting year are described within the Sustainability Report, which is verified with a limited assurance by Deloitte. Thus, they are included in the verification process.
C8. Energy	Energy consumption	Reasonable assurance	Energy consumption and energy efficiency for the current and the previous reporting year are described within the Sustainability Report and the Annual Report. The Sustainability Report is verified with a limited assurance by Deloitte. The Annual Report is verified with a reasonable assurance. Thus, they are included in the verification processes of both reports.
C12. Engagement	Other, please specify (Supplier Management)	Reasonable assurance	Details on sustainability in the supply chain (e.g. the sustainability requirements defined in the Supplier Code of Conduct) are described within the Sustainability Report and the Annual Report. The Sustainability Report is verified with a limited assurance by Deloitte. The Annual Report is verified with a reasonable assurance. Thus, they are included in the verification processes of both reports.

Bayer Sustainability Report 2019.pdf  
Bayer Annual Report 2019.pdf

**C11. Carbon pricing**

**C11.1**

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

Yes

**C11.1a**

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

EU ETS

## C11.1b

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

### EU ETS

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

12

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

0

**Period start date**

January 1 2019

**Period end date**

December 31 2019

**Allowances allocated**

210000

**Allowances purchased**

0

**Verified Scope 1 emissions in metric tons CO2e**

342000

**Verified Scope 2 emissions in metric tons CO2e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

## C11.1d

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

Bayer's strategy to make sure we comply with the EU ETS is to keep sufficient allowances. Additional allowances will be bought if our own allowances do not meet the needs under regulatory national calculation. FOR EXAMPLE, we appraise our situation in terms of allowances for each year. We match our expected requirements of allowances against our expected apportionment and our sizeable buffer to decide whether there is a need to buy additional allowances.

Furthermore, Bayer has introduced an ambitious GHG emission reduction strategy. Our ambitious GHG reduction plan helps to comply with the EU ETS and to manage risks that arise from this scheme and potential future emission cap-and-trade systems.

CASE STUDY: The Bayer Climate Program, launched in 2007, was a game changer to bundle our expertise in providing climate change mitigation and adaptation solutions, to improve our CO2 footprint and to increase awareness of climate change issues. Company-wide communication and implementation has fostered broad resource efficiency initiatives. Despite significantly expanding production, we reduced our absolute GHG emissions significantly between 1990 and 2015 by more than 20%. Setting GHG EMISSION REDUCTION TARGETS and driving initiatives to achieve them have become an integral part of Bayer's sustainability strategy. FOR EXAMPLE, we decided to improve Bayer's carbon footprint and set more ambitious GHG REDUCTION AND ENERGY EFFICIENCY TARGETS following the Paris Agreement: to achieve an improvement of 10% in energy efficiency and a 20% reduction in specific GHG emissions by 2020 compared with 2015. 2019 emission reduction activities included e.g. energy efficiency improvements in production processes and in buildings such as optimizations with regard to heat recovery, pinch pointing, and effectiveness of steam generation, insulation improvements through the reconstruction of roofs, reduction of leakage, the installation of a solar panel, HVAC optimizations, and changing of lighting systems.

After already achieving our 2020 targets in 2019, we JOINED THE SCIENCE BASED TARGETS INITIATIVE. We committed to ambitious emissions reduction targets which were approved through the Science Based Targets initiative (SBTi) by setting a science-based target in line with a 1.5°C future. We aim to make our own production sites carbon-neutral by 2030 and are therefore implementing energy efficiency measures at our sites and increasing the procurement of electricity from renewable sources. In line with this, Bayer has developed and set itself the targets to reduce absolute Scope 1 and Scope 2 GHG emissions by 42 % by 2029 from a 2019 base year and to reduce absolute Scope 3 GHG emissions from purchased goods and services, capital goods, fuel and energy related activities, upstream transportation & distribution, and business travel by 12.3 % by the end of 2029 from a 2019 base year. These targets aim to keep Bayer's emissions from Scope 1 and 2 in line with a global temperature raise below 1.5°C and its emissions from Scope 3 in line with a global temperature raise below 2°C.

These targets reflect our contribution to climate protection and support our strategy for complying with the EU ETS.

## C11.2

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

No

## C11.3

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

No, but we anticipate doing so in the next two years

## C12. Engagement

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### C12.1

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

Yes, our suppliers

Yes, other partners in the value chain

### C12.1a

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#### (C12.1a) Provide details of your climate-related supplier engagement strategy.

##### Type of engagement

Information collection (understanding supplier behavior)

##### Details of engagement

Collect climate change and carbon information at least annually from suppliers

##### % of suppliers by number

0.82

##### % total procurement spend (direct and indirect)

18.9

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

##### Rationale for the coverage of your engagement

Bayer's purchasing volume of ca. EUR 17.6 billion from 86,400 suppliers in 143 countries in 2019 makes suppliers a strategic priority of our engagement activities. Bayer collects climate change and carbon information from all relevant suppliers regularly e.g. regarding the suppliers' greenhouse gas (GHG) emissions, climate change strategies or procedures to measure and reduce environmental impacts of GHGs. RATIONALE: Because we cannot evaluate all 86,400 suppliers, they are selected based on a combination of country and category sustainability risks as well as strategic importance (e.g., in terms of procurement spend and long-term collaboration prospects). In 2019, Bayer has requested information from 0.82% of its suppliers (ca. 712 out of 86,400), representing ca. 18.9% of the total procurement spend. Online assessments are carried out on Bayer's behalf by the service provider EcoVadis. EcoVadis evaluated 650 suppliers on our behalf in 2019. In addition, 62 of our suppliers were audited on-site by external, independent auditors in 2019. Throughout 2019 we started to integrate legacy Monsanto suppliers into our 4-step management process (1. raising awareness, 2. selecting suppliers for evaluation, 3. evaluating sustainability performance, 4. supplier development). The integration is ongoing until end of 2020. The audit criteria include both the specifications of our code of conduct and industry-specific requirements that we have jointly laid out in the industry initiatives Together for Sustainability (TfS) and the Pharmaceutical Supply Chain Initiative (PSCI). The initiatives are intended to help standardize the sustainability requirements of suppliers in the chemical and pharmaceutical industries. Synergies are also created through exchange of assessment and audit results within the initiatives. This helped us achieve our target of developing and introducing a new sustainability standard for our suppliers by 2020. Within the TfS initiative, a total of 4,491 sustainability assessments and re-assessments were performed, also through EcoVadis, in 2019, along with 309 audits. Within the scope of PSCI the number of audits was 97. In addition, Bayer auditors evaluate selected new and existing suppliers particularly with regard to health, safety and environmental protection. A total of 103 suppliers were evaluated by Bayer auditors in 2019.

##### Impact of engagement, including measures of success

i) MEASURES OF SUCCESS: We set ambitious targets and measure our success in terms of TARGET FULFILLMENT. Bayer's goal is to EVALUATE ALL BAYER SUPPLIERS WITH SIGNIFICANT PROCUREMENT SPEND (>1 MILLION € P.A., FROM 2020 ONWARDS >500,000 € P.A.) regarded as potentially high-risk suppliers due to their combined country and category sustainability risk. Our target attainment before acquisition of Monsanto was 100%. Throughout 2019 we started to integrate legacy Monsanto suppliers into our 4-step management process. Our goal is to continue to have all relevant legacy Bayer suppliers evaluated by end of 2020. From 2020, we want to define new priorities in our four-step management process. We aim to further expand our supplier development activities (Step 4). It is our goal to help relevant suppliers achieve successes in their sustainability performance over the long term. In addition, we want to shift the focus more towards CO2 emissions in the supply chain, our supplier diversity and sustainability assessments at tier 2 level. SUCCESS IS ALSO MEASURED through re-assessments or follow-up audits that monitor the implementation of improvements requested by us. ii) IMPACT OF ENGAGEMENT: The online assessments and on-site audits are analyzed and documented in order to DEFINE SPECIFIC IMPROVEMENT MEASURES in case of unsatisfactory results. In 2019, this applied above all to the categories of sustainable procurement and the environment. In case of critical results, Bayer REQUESTS THE SUPPLIERS TO RECTIFY THE IDENTIFIED WEAKNESSES within an appropriate period of time based on specific action plans. In 2019, this applied to 11 suppliers (2% of all assessed and audited suppliers). We monitor the implementation of these activities by way of re-assessments or follow-up audits. Bayer terminates a supplier relationship if no improvement is observed during a re-evaluation. In 2019, Bayer was not prompted to end any supplier relationship due solely to sustainability performance. Our regular monitoring shows that in 2019 332 of our 712 suppliers evaluated have improved their sustainability performance which encompasses energy and GHG emissions. By requesting carbon and climate change information from our suppliers, SUPPLIERS BECOME MORE AWARE OF SUSTAINABILITY TOPICS, they ENGAGE IN SUSTAINABILITY ACTIVITIES and start or continue IMPROVING THEIR SUSTAINABILITY PERFORMANCE.

##### Comment

Additional information on supplier engagement: The TfS initiative is testing the introduction of a collaboration platform involving Bayer suppliers as another element of supplier development. It provides users with numerous bestpractice examples and dialogue opportunities, as well as activities, tips, case studies and expert suggestions on the topics of water, energy and waste. The supplier training measures launched in 2018 under the auspices of the German Business Initiative for Sustainable Value Chains were successfully completed in the spring of 2019. Selected Bayer suppliers received intensive training on environmental, social and human rights standards and subsequent support in practical application. The training program is being continued under the name Econchain.

## C12.1d

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

#### EXAMPLE 1:

**PARTNERS:** Bayer is engaging with other partners in the value chain through SusChem - the European Technology Platform for Sustainable Chemistry. SusChem brings together industry, academia, governmental policy groups and the wider society. The Head of Process Technology Development at Bayer's corporate function Engineering & Technology represented Bayer as a Member of the SusChem Board.

**CASE STUDY OF ENGAGEMENT STRATEGY:** Bayer supports SusChem's vision for a competitive and innovative Europe where sustainable chemistry and biotechnology provide solutions for future generations especially to initiate and inspire European chemical and biochemical innovation to respond effectively to global challenges by providing sustainable solutions. These include e.g. innovations that contribute to a resource-efficient process industry or enable new uses for CO<sub>2</sub>.

SusChem and Bayer as member, has launched in November 2019 its new **Strategic Innovation and Research Agenda (SIRA)** at the SusChem Stakeholders 2019 event "Sustainable Chemistry to solve global challenges: the new SusChem Strategic Research and Innovation Agenda". The chemical sector's key enabling technologies provide the critical building blocks for the solutions needed to achieve a sustainable low carbon circular economy. They impact all value chains including energy, construction, mobility and electronics

The new SusChem SIRA focuses on technology priorities towards 2030, across **Advanced Materials, Advanced Processes** as well as the implementation and co-development of **Enabling Digital Technologies**. Horizontal topics are equally addressed, including **sustainability assessment innovation, safe-by-design for chemicals and materials**, as well as **building on education and skills capacity in Europe**.

Bayer ACTIVELY SUPPORTED SUSCHEM'S ENGAGEMENT IN 2019 contributing to the new Strategic Innovation Research Agenda. "The future of Research and Innovation in Europe: Defining Technology Priorities for Sustainable Growth and Shaping expectations and priorities for the next EU Framework Programme from the viewpoint of sustainable chemistry". Here, in particular, the aspects of circular economy and resource efficiency e.g. identifying new feedstocks, low carbon economy e.g. reducing emissions, energy and resource usage and new technologies for materials up and recycling e.g. the valorization of waste streams were at the center of discussion.

Related to the challenge area of Environmental and Human Health SusChem has identified Sustainable Agriculture, Forestry and Soil Health and linked Technologies as one of the areas of particular priority.

Bayer has supported SusChem to make a significant contribution to climate-related policy development in the European Institutions and important European Innovation Partnerships esp. SIRA.

#### EXAMPLE 2:

**PARTNERS:** Crop Science (CS) engages with participants in the food chain such as farmers, the processing industry, exporters and dealers.

**CASE STUDY OF ENGAGEMENT STRATEGY:** The central element is the BayG.A.P. program via which Bayer TRAINS growers to successfully implement good agricultural practices. Our TRAININGS enable farmers on how to use crop protection products effectively and safely, mainly as part of customer events or through courses in cooperation with partners, e.g. local, regional and international associations but also through dedicated online training sessions. CS is intensifying its DIRECT COOPERATION with farmers and the food value chain to develop tailored solutions for sustainable agriculture to safeguard and increase yields and to improve the quality of harvested produce. Bayer also reinforces its support for sustainable agriculture with Bayer ForwardFarming: a knowledge platform to demonstrate sustainable agriculture in practice.

Bayer focuses on training activities in countries where there are no statutory requirements or certification for users regarding the safe handling of crop protection products.

In 2019, more than 1 mio farmers worldwide received safety training from Bayer. CS has initiated about 350 food chain partnership initiatives in 25 countries and 70 crops. >2900 growers worldwide have been trained with BayG.A.P. and additional >1900 participants followed BayG.A.P. through the BayG.A.P. Online Training Platform. 30 growers from India obtained the G.A.P. Letter of Conformance.

## C12.3

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

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

## C12.3a

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

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Clean energy generation	Support	Bayer engages on a number of different topics, in multiple countries, and with a variety of stakeholders and organizations. Regarding climate change, energy transition is a major topic. The energy transition involves an ambitious expansion in renewable and regenerative energy and a decrease of fossil-fueled energy production. The goal is decarbonization and a stable supply whilst minimizing ecological problems. Energy transition was also a major element of the 2015 Paris Agreement, within the United Nations Framework Convention on Climate Change. The countries signing the Agreement committed themselves to reduce net greenhouse gas emissions to zero between 2045 and 2060 to help fight climate change. The European Union and its Member States are seeking to play a pioneering role in decarbonization. The EU is actively working towards becoming a low-carbon society, by cutting emissions and investing in energy reduction initiatives, such as e.g. clean technologies. The energy transition also includes the use of efficiency enhancing methods, such as cogeneration or combined heat and power (CHP). It includes the efficient recovery of released heat in industrial processes. Since production facilities require heat on a year-round basis, heat and electrical energy are generated in a combined process, which is highly efficient and reduces the need for additional heat or energy sources.	Bayer fundamentally supports the energy transition and supports the goal of the Paris Agreement to switch power and heat supplies from fossil fuels to renewable energies. Bayer aims to continuously improve the energy efficiency of its production facilities and along the entire value-added chain to find innovative market solutions that can help to achieve energy savings. There are also challenges associated with the energy transition. One concern is the rising energy prices, which have a detrimental impact on the competitiveness of production sites which face already high energy prices (e.g. Germany). Energy prices also have an effect on competitiveness and sustainability of industries. Furthermore, we need to ensure security of energy supply. It is essential to draw up plans how renewable energies are to be integrated into sustainable supply strategies to ensure future security. One core element of Bayer's efficiency strategy is the use of cogeneration in energy production in Germany. The legal framework conditions to complement renewable energies with cogeneration technology are increasingly favorable. Bayer is taking several steps to reduce greenhouse gas emissions within our company and along our entire value chain in accordance with the Paris Agreement. Our Sustainability Targets for climate protection by 2030: - Bayer wants to be carbon-neutral by 2030. To accomplish this, we will implement energy efficiency measures at our sites and switch to 100 percent electricity from renewable energies. The remaining emissions will be offset by purchasing certificates from climate protection projects with recognized quality standards. - We aim to reduce greenhouse gas emissions along the up- and downstream value chain through cooperation with suppliers and customers. - Our targets are in line with the goal of the Paris Agreement to limit global warming to 1.5 degrees Celsius, or well below 2 degrees Celsius. We have joined the world's leading Science Based Targets initiative, which transparently reviews our reduction targets. This initiative was founded by the Carbon Disclosure Project (CDP), the UN Global Compact, the World Resources Institute (WIR) and the World Wide Fund For Nature (WWF).

**C12.3b**

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

Yes

**C12.3c**

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

**Trade association**

German Chemical Industry Association (VCI)

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

Consistent

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

The VCI acknowledges the commitment of the chemical industry in Germany to sustainability and promotes the sustainable development in companies. The VCI holds the position that, with its products and with its efficient co-generation plants, the chemical industry is contributing to sustainable development and climate change mitigation. Furthermore, the VCI is committed to international standards for sustainability and works closely with global organizations for the promotion of sustainable development, climate mitigation and resource efficiency.

**How have you influenced, or are you attempting to influence their position?**

Bayer is involved with the VCI regarding important issues related to the German chemical industry, including climate change, and is influencing the association through active involvement in relevant committees and working groups. Bayer's CEO serves as vice-president of the VCI.

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**Trade association**

The Federation of German Industries (BDI)

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

Consistent

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

The BDI generally supports ambitious and effective climate protection in Germany, the EU and worldwide. The BDI is strongly involved in the discussions regarding resource efficiency in the circular economy.

**How have you influenced, or are you attempting to influence their position?**

Bayer is involved with the BDI on issues important to the German industry, including climate change related issues. Bayer's CEO serves as Member of the Presidential Board of the BDI. In addition, Bayer provided significant input in the past e.g. in developing BDI positions regarding electricity market design.

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**Trade association**

Business Roundtable

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

Consistent

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

Business Roundtable has developed a new climate change statement that was not released in March due to covid-19. The statement supports the Paris Agreement and outlines steps to take including setting sector specific GHG reduction targets.

**How have you influenced, or are you attempting to influence their position?**

Bayer is involved with the Business Roundtable on issues important to the U.S. industry, including climate change issues, and was actively involved in the policy development. The President of Bayer U.S. serves as Board Member of the Business Roundtable.

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**Trade association**

U.S. Chamber of Commerce

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

Consistent

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

The U.S. Chamber of Commerce support U.S. participation in the Paris Agreement. The Chamber calls on policymakers to rise to the challenge of climate change by leveraging business leadership and expertise, America's energy edge, and ability to innovate. The Chamber believes that an effective climate policy should leverage the power of business, maintain U.S. leadership in climate science, embrace technology and innovation to manage climate risks and reduce GHG emissions, aggressively pursue greater energy efficiency, promote climate resilient infrastructure, support trade in U.S. climate technologies and products, and encourage international cooperation.

**How have you influenced, or are you attempting to influence their position?**

Bayer is involved with the U.S. Chamber of Commerce on issues important to the U.S. industry, including climate change. The Head of Corporate Affairs of Bayer U.S. serves as Board Member of the U.S. Chamber of Commerce.

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**Trade association**

CropLife America

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

Consistent

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

CropLife America (CLA) supports environmental policies that are based on sound science, best practices and maintain farmers and companies' competitive advantage. CLA has no official position, but supports the science behind climate change and the role of agriculture and plant science to reduce emissions and build climate resiliency.

**How have you influenced, or are you attempting to influence their position?**

Bayer is involved with CropLife America on issues important to the Crop industry, including climate change. The Senior VP Agricultural Global Government relations at Bayer Crop Science serves as Board Member of CropLife America.

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**C12.3d**

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

No



## C12.3e

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### (C12.3e) Provide details of the other engagement activities that you undertake.

1) SusChem - the European Technology Platform for Sustainable Chemistry, which brings together industry, academia, governmental policy groups and the wider society. The Head of Process Technology Development at Bayer's corporate function Engineering & Technology represented Bayer as a Member of the SusChem Board. Bayer supports SusChem's vision for a competitive and innovative Europe where sustainable chemistry and biotechnology provide solutions for future generations especially to initiate and inspire European chemical and biochemical innovation to respond effectively to global challenges by providing sustainable solutions. These include e.g. innovations that contribute to a resource-efficient process industry or enable new uses for CO<sub>2</sub>.

The European Technology Platform for Sustainable Chemistry (SusChem), and Bayer as member, has launched in November 2019 its new **Strategic Innovation and Research Agenda (SIRA)** at the SusChem Stakeholders 2019 event "Sustainable Chemistry to solve global challenges: the new SusChem Strategic Research and Innovation Agenda".

The chemical sector's key enabling technologies provide the critical building blocks for the solutions needed to achieve a sustainable low carbon circular economy. They impact all value chains including energy, construction, mobility and electronics

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Bayer ACTIVELY SUPPORTED SUSCHEM'S ENGAGEMENT IN 2019 contributing to the new Strategic Innovation Research Agenda. "The future of Research and Innovation in Europe: Defining Technology Priorities for Sustainable Growth and Shaping expectations and priorities for the next EU Framework Program from the viewpoint of sustainable chemistry". Here, in particular, the aspects of circular economy and resource efficiency e.g. identifying new feedstocks, low carbon economy e.g. reducing emissions, energy and resource usage and new technologies for materials up and recycling e.g. the valorization of waste streams were at the center of discussion.

Related to the challenge area of Environmental and Human Health SusChem has identified Sustainable Agriculture, Forestry and Soil Health and linked Technologies as one of the areas of particular priority.

Bayer has supported SusChem to make a significant contribution to climate-related policy development in the European Institutions and important European Innovation Partnerships esp. SIRA.

2) econsense - a German business network founded on the initiative of the Federation of German Industries with the goal to provide a dialogue platform and think tank to advance sustainable development in business. Bayer is an active member of econsense. Among others, in 2019 econsense engaged and contributed to the COP 25, for example through the elaboration of the COP discussion paper „Contributions to Ambitious Climate Action from German Industries“ presenting best practice examples of econsense members who committed to the goal of the Paris Agreement and set ambitious climate protection targets. Other focus topics were the analysis of the European Green Deal and the German Climate Protection Law, the implementation of TCFD recommendations, particularly, scenario analysis, and the development of science-based targets.

Bayer actively contributes to the work in several econsense groups e.g. Environmental & Climate Issues, Reporting & Rating, SDGs & Digital Transformation and Sustainability in the Supply Chain to promote sustainability in the business community and enable best practice sharing for a dialogue with stakeholders in politics, science and business.

## C12.3f

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

Bayer's organizational processes are designed to ensure a common approach for all direct and indirect engagement activities, consistent with our Sustainability Strategy - across divisions and geographies.

Sustainability is a core element of our Group Strategy and is the direct responsibility of the Chairman of the Board of Management of Bayer AG. In his role as Chief Sustainability Officer, he is supported by the Public Affairs, Science & Sustainability function, which not only is responsible for the outreach to political stakeholders but also to develop strategies and identify areas of activity, targets, key performance indicators, management systems and corporate policies and compiles the Sustainability Report on behalf of the Board of Management.

Operational implementation takes place in the divisions and along the value chain. Reviewing and revising these regulations and internal audits ensure our management systems are continuously improved and aligned to the respective requirements.

Bayer has recently established a Sustainability Advisory Council that will advise the Board of Management and the organization in all sustainability matters including climate protection. This is staffed with external experts from the areas of health care, nutrition, agriculture and the environment representing a broad range of views, differing geographical origin and different genders. The council will support the company in implementing its sustainability strategy, provide advice on strategic matters and in particular contribute new perspectives and ranges of experience.

The close interaction between Public Affairs / Governmental Affairs and the Sustainability team ensure alignment and consistency with regard to our overall climate protection strategy also in direct and indirect interactions with political stakeholders across the Globe.

## C12.4

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

**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

Bayer Annual Report 2019.pdf

**Page/Section reference**

The chapter "Environmental Protection and Safety" of Bayer's Annual report 2019 on pages 58-60 includes Bayer's GHG EMISSIONS PERFORMANCE and ENERGY CONSUMPTION. Furthermore, Bayer's Combined Management Report on pages 24-60 includes a description of our sustainability strategy and governance (incl. climate), our new emission targets and relevant risks and opportunities. In this chapter, Bayer depicts its strategy and efforts regarding sustainability and especially climate protection.

**Content elements**

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets
- Other metrics

**Comment**

Bayer's Annual Report includes descriptions of our sustainability approach. This is integrated in Bayer's Management Report and verified by Deloitte as part of the reasonable assurance process of Bayer's Annual Report 2019. The sustainability information integrated in the report includes the content elements described in the previous column.

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**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

Bayer Sustainability Report 2019.pdf

**Page/Section reference**

The chapter "Environmental Protection and Safety" of Bayer's Sustainability report 2019 on p. 48-58 includes Bayer's GHG EMISSIONS PERFORMANCE and response to CLIMATE CHANGE including Bayer's climate protection efforts. Furthermore, Bayer's Sustainability Report includes a description of our sustainability strategy incl. our climate strategy and targets (p. 5-10 and 14-20). Risks and opportunities, including those related to climate, are described in our Product Stewardship chapter (p. 21ff).

**Content elements**

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets
- Other metrics
- Other, please specify (Environmental incidents)

**Comment**

With the Sustainability Report, Bayer aims to provide transparent and in-depth insights into both its sustainability strategy and its sustainability performance. The report supplements the nonfinancial statement pursuant to the CSR Directive Implementation Act (CSR-RUG) that is published in the combined management report of the Annual Report 2019. This Sustainability Report is verified by Deloitte with limited assurance.

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## C15. Signoff

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C-FI

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

Comment to C4.3b:

To simplify reporting, we have consolidated different projects concerning the same activity in one row. Due to confidentiality reasons we cannot disclose all internal costs, therefore in some cases monetary savings and required investments include partial data.

Comment for C7.5:

For confidentiality reasons we report purchased and consumed electricity, heat, steam or cooling (MWh) as well as purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh) by region. Data for countries in EMEA region is summarized and reported under Germany. Data for countries in Americas region is summarized and reported under United States of America. Data for countries in Asia-Pacific region is summarized and reported under India. All countries not included in this question's list are summarized and reported under Rest of World.

## C15.1

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

	Job title	Corresponding job category
Row 1	Bayer AG Chairman of the Board of Management (CEO) and Chief Sustainability Officer (CSO)	Board chair

## SC. Supply chain module

### SC0.0

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

Bayer is answering very detailed to the CDP Investor Request and it is an additional benefit to share this information with our customers via the CDP Supply Chain Request as well. Already, Bayer is permanently engaging with its customers on many levels and on different ways for continuous improvement in the value chain. The CDP Supply Chain Request offers one more opportunity to get involved. For other customers we recommend direct communication.

### SC0.1

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

	Annual Revenue
Row 1	43545000000

### SC0.2

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

Yes

### SC0.2a

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

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	DE	000BAY0017

### SC1.1

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

**Requesting member**

CVS Health

**Scope of emissions**

Scope 1

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 1 emissions for Pharmaceuticals.

**Emissions in metric tonnes of CO2e**

896

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

CVS Health

**Scope of emissions**

Scope 2

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 2 emissions for Pharmaceuticals.

**Emissions in metric tonnes of CO2e**

684

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

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**Requesting member**

CVS Health

**Scope of emissions**

Scope 3

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 3 emissions for Pharmaceuticals.

**Emissions in metric tonnes of CO2e**

6362

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

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**Requesting member**

Johnson & Johnson

**Scope of emissions**

Scope 1

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 1 emissions for Pharmaceuticals.

**Emissions in metric tonnes of CO2e**

384

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Johnson & Johnson

**Scope of emissions**

Scope 2

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 2 emissions for Pharmaceuticals.

**Emissions in metric tonnes of CO2e**

293

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

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**Requesting member**

Johnson & Johnson

**Scope of emissions**

Scope 3

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 3 emissions for Pharmaceuticals.

**Emissions in metric tonnes of CO2e**

2725

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

S.C. Johnson & Son, Inc.

**Scope of emissions**

Scope 1

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**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 1 emissions for Crop Science

**Emissions in metric tonnes of CO2e**

155

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

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**Requesting member**

S.C. Johnson & Son, Inc.

**Scope of emissions**

Scope 2

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 2 emissions for Crop Science

**Emissions in metric tonnes of CO2e**

125

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

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**Requesting member**

S.C. Johnson & Son, Inc.

**Scope of emissions**

Scope 3

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 3 emissions for Crop Science

**Emissions in metric tonnes of CO2e**

621

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Target Corporation

**Scope of emissions**

Scope 1

**Allocation level**

Business unit (subsidiary company)

---

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 1 emissions for Consumer Health

**Emissions in metric tonnes of CO2e**

840

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Target Corporation

**Scope of emissions**

Scope 2

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 2 emissions for Consumer Health

**Emissions in metric tonnes of CO2e**

2036

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Target Corporation

**Scope of emissions**

Scope 3

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 3 emissions for Consumer Health

**Emissions in metric tonnes of CO2e**

30458

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Santa Catarina

**Scope of emissions**

Scope 1

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 1 emissions for Pharmaceuticals.

---

**Emissions in metric tonnes of CO2e**

10.589

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

BBayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Santa Catarina

**Scope of emissions**

Scope 2

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail****Emissions in metric tonnes of CO2e**

8.091

**Uncertainty (±%)****Major sources of emissions**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 2 emissions for Pharmaceuticals

**Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Santa Catarina

**Scope of emissions**

Scope 3

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 3 emissions for Pharmaceuticals

**Emissions in metric tonnes of CO2e**

75.213

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Wal Mart de Mexico

**Scope of emissions**

Scope 1

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 1 emissions for Consumer Health

**Emissions in metric tonnes of CO2e**

3882



**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Wal Mart de Mexico

**Scope of emissions**

Scope 2

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 2 emissions for Consumer Health

**Emissions in metric tonnes of CO2e**

9411

**Uncertainty (±%)****Major sources of emissions**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 2 emissions for Consumer Health

**Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

Wal Mart de Mexico

**Scope of emissions**

Scope 3

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail****Emissions in metric tonnes of CO2e**

140802

**Uncertainty (±%)****Major sources of emissions**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 3 emissions for Consumer Health

**Verified**

Please select

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

---

**Requesting member**

BMW AG

**Scope of emissions**

Please select

**Allocation level**

Please select

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e****Uncertainty (±%)****Major sources of emissions**

**Verified**

Please select

**Allocation method**

Please select

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

---

**Requesting member**

California Department of General Services (DGS)

**Scope of emissions**

Please select

**Allocation level**

Please select

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e****Uncertainty (±%)****Major sources of emissions****Verified**

Please select

**Allocation method**

Please select

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

---

**Requesting member**

CVS Health

**Scope of emissions**

Scope 1

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 1 emissions for Consumer Health

**Emissions in metric tonnes of CO2e**

1361

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target: We are aiming to become carbon neutral in our own operations by 2030. To accomplish this, Bayer will implement energy efficiency measures, switch to 100 percent renewable electricity and offset the remaining emissions through biodiversity-enhancing carbon capture. Within this framework, we are part of the Science Based Targets Initiative. In this regard, we are striving for absolute emission reduction along the entire value chain by engaging with suppliers and customers, as well as in our logistics and packaging. Therefore and in order to be transparent also towards our customers, we allocate the emissions for requesting companies through a market value approach.

---

**Requesting member**

CVS Health

**Scope of emissions**

Scope 2

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 2 emissions for Consumer Health

**Emissions in metric tonnes of CO2e**

3300

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target: We are aiming to become carbon neutral in our own operations by 2030. To accomplish this, Bayer will implement energy efficiency measures, switch to 100 percent renewable electricity and offset the remaining emissions through biodiversity-enhancing carbon capture. Within this framework, we are part of the Science Based Targets Initiative. In this regard, we are striving for absolute emission reduction along the entire value chain by engaging with suppliers and customers, as well as in our logistics and packaging. Therefore and in order to be transparent also towards our customers, we allocate the emissions for requesting companies through a market value approach.

---

**Requesting member**

CVS Health

**Scope of emissions**

Scope 3

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 3 emissions for Consumer Health

**Emissions in metric tonnes of CO2e**

49367

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target: We are aiming to become carbon neutral in our own operations by 2030. To accomplish this, Bayer will implement energy efficiency measures, switch to 100 percent renewable electricity and offset the remaining emissions through biodiversity-enhancing carbon capture. Within this framework, we are part of the Science Based Targets Initiative. In this regard, we are striving for absolute emission reduction along the entire value chain by engaging with suppliers and customers, as well as in our logistics and packaging. Therefore and in order to be transparent also towards our customers, we allocate the emissions for requesting companies through a market value approach.

---

**Requesting member**

Target Corporation

**Scope of emissions**

Scope 1

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 1 emissions for Crop Science.

**Emissions in metric tonnes of CO2e**

964

**Uncertainty (±%)****Major sources of emissions****Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target: We are aiming to become carbon neutral in our own operations by 2030. To accomplish this, Bayer will implement energy efficiency measures, switch to 100 percent renewable electricity and offset the remaining emissions through biodiversity-enhancing carbon capture. Within this framework, we are part of the Science Based Targets Initiative. In this regard, we are striving for absolute emission reduction along the entire value chain by engaging with suppliers and customers, as well as in our logistics and packaging. Therefore and in order to be transparent also towards our customers, we allocate the emissions for requesting companies through a market value approach.

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**Requesting member**

Target Corporation

**Scope of emissions**

Scope 2

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 2 emissions for Crop Science.

**Emissions in metric tonnes of CO2e**

774

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**Uncertainty (±%)**

**Major sources of emissions**

**Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target: We are aiming to become carbon neutral in our own operations by 2030. To accomplish this, Bayer will implement energy efficiency measures, switch to 100 percent renewable electricity and offset the remaining emissions through biodiversity-enhancing carbon capture. Within this framework, we are part of the Science Based Targets Initiative. In this regard, we are striving for absolute emission reduction along the entire value chain by engaging with suppliers and customers, as well as in our logistics and packaging. Therefore and in order to be transparent also towards our customers, we allocate the emissions for requesting companies through a market value approach.

**Requesting member**

Target Corporation

**Scope of emissions**

Scope 3

**Allocation level**

Business unit (subsidiary company)

**Allocation level detail**

We allocate the emissions for requesting companies through a market value approach. The CO2 emissions are Scope 3 emissions for Crop Science.

**Emissions in metric tonnes of CO2e**

3852

**Uncertainty (±%)**

**Major sources of emissions**

**Verified**

No

**Allocation method**

Allocation based on the market value of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Bayer has set itself an ambitious climate target and joined the Science Based Target initiative. As part of our ambitious targets we evaluate and calculate our own emissions with high accuracy separately for our business units. Based on sales with the respective business unit we allocate emissions towards our customers.

**SC1.2**

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

**SC1.3**

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

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	Our production at one site has multiple products and customers. The emissions are only available for the site and cannot be broken down to products or customers. There is no single production relation due to multi purposes of the site
Customer base is too large and diverse to accurately track emissions to the customer level	Our production at one site has multiple products and customers. The emissions are only available for the site and cannot be broken down to products or customers. There is no single production relation due to multi purposes of the site

**SC1.4**

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

Yes

**SC1.4a**

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

We are evaluating if there is a possibility to further break it down.

SC2.1

---

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

**Requesting member**

BMW AG

**Group type of project**

Please select

**Type of project**

Please select

**Emissions targeted**

Please select

**Estimated timeframe for carbon reductions to be realized**

Please select

**Estimated lifetime CO2e savings**

**Estimated payback**

Please select

**Details of proposal**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

---

**Requesting member**

California Department of General Services (DGS)

**Group type of project**

Please select

**Type of project**

Please select

**Emissions targeted**

Please select

**Estimated timeframe for carbon reductions to be realized**

Please select

**Estimated lifetime CO2e savings**

**Estimated payback**

Please select

**Details of proposal**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

---

**Requesting member**

CVS Health

**Group type of project**

Please select

**Type of project**

Please select

**Emissions targeted**

Please select

**Estimated timeframe for carbon reductions to be realized**

Please select

**Estimated lifetime CO2e savings**

**Estimated payback**

Please select

**Details of proposal**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

---

**Requesting member**

Johnson & Johnson

**Group type of project**

Please select

**Type of project**

Please select

**Emissions targeted**

Please select

**Estimated timeframe for carbon reductions to be realized**

Please select

---

**Estimated lifetime CO2e savings**

**Estimated payback**

Please select

**Details of proposal**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

---

**Requesting member**

S.C. Johnson & Son, Inc.

**Group type of project**

Please select

**Type of project**

Please select

**Emissions targeted**

Please select

**Estimated timeframe for carbon reductions to be realized**

Please select

**Estimated lifetime CO2e savings**

**Estimated payback**

Please select

**Details of proposal**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

---

**Requesting member**

Santa Catarina

**Group type of project**

Please select

**Type of project**

Please select

**Emissions targeted**

Please select

**Estimated timeframe for carbon reductions to be realized**

Please select

**Estimated lifetime CO2e savings**

**Estimated payback**

Please select

**Details of proposal**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

---

**Requesting member**

Target Corporation

**Group type of project**

Please select

**Type of project**

Please select

**Emissions targeted**

Please select

**Estimated timeframe for carbon reductions to be realized**

1-3 years

**Estimated lifetime CO2e savings**

**Estimated payback**

Please select

**Details of proposal**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

---

**Requesting member**

Wal Mart de Mexico

**Group type of project**

Please select

**Type of project**

Please select

**Emissions targeted**

Please select

**Estimated timeframe for carbon reductions to be realized**

Please select

**Estimated lifetime CO2e savings**

**Estimated payback**

Please select

**Details of proposal**

Customers are kindly asked to address their specific information requests directly to their respective contacts as information can only be provided directly to the customer.

SC2.2

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

No

SC3.1

**(SC3.1) Do you want to enroll in the 2020-2021 CDP Action Exchange initiative?**

No

SC3.2

**(SC3.2) Is your company a participating supplier in CDP's 2019-2020 Action Exchange initiative?**

No

SC4.1

**(SC4.1) Are you providing product level data for your organization's goods or services?**

No, I am not providing data

Submit your response

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

English

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

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

**Please confirm below**

I have read and accept the applicable Terms