# **Volkswagen AG - Climate Change 2019**

## **C0. Introduction**

## **C0.1**

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

This is an open text question with a limit of 5,000 characters.

Please note that when copying from another document into the disclosure platform, formatting is not retained.

The Volkswagen Group with its headquarters in Wolfsburg is one of the world’s leading automobile manufacturers and the largest carmaker in Europe. The Group aspires to offer attractive, safe and eco-friendly vehicles that set the global benchmark in their respective classes. In 2018, the number of Group vehicles delivered to customers was 10.834 million (2017: 10.742 million). The share of the world passenger car market amounts to 12.1 percent (11.9 percent 2016).

Group sales revenue in 2018 totaled € 235.849 million (2017: € 229 550 million), while earnings after tax amounted to € 12.153 billion (2017: € 11.463 billion).

The Group comprises twelve brands from seven European countries: Volkswagen Passenger Cars, Audi, SEAT, ŠKODA, Bentley, Bugatti, Lamborghini, Porsche, Ducati, Volkswagen Commercial Vehicles, Scania and MAN. The product spectrum ranges from motorcycles to low consumption small cars and luxury vehicles. In the commercial vehicle sector, the products include ranges from pick-ups, buses and heavy trucks.

In addition, the Volkswagen Group offers a wide range of financial services, including dealer and customer financing, vehicle leasing, banking and insurance activities, and fleet management. With MOIA, we have established our own company for new mobility solutions.

The Group operates 123 production plants worldwide with around 664 496 (2017: 642 292) employees. The Volkswagen Group markets its vehicles in 153 countries.

The future program TOGETHER – Strategy 2025, the biggest chance process in the history of Volkswagen, was launched in 2016. It aims to make a significant contribution to achieving a reality in which mobility has fewer negative environmental impacts, and to attaining the United Nations’ Sustainable Development Goals (SDGs). Our goal is to become a role model for environmental protection. We believe the transformation of our core business is the right way to meet these objectives. Under the new vision "Shaping mobility - for generations to come." we are providing answers to the challenges of today and tomorrow with our sharpened TOGETHER 2025+ Group Strategy in mid 2019. Our goal is to make mobility sustainable for us and for future generations.

In 2019 The Volkswagen Group has set milestones in all areas to be achieved in the coming years on the road to complete decarbonization by 2050. Volkswagen is thus fully committed to the Paris climate targets. The 2025 target is to reduce the CO2 footprint of the vehicle feet by 30 percent across the lifecycle compared to 2015. Volkswagen is therefore electrifying the vehicle portfolio, with investment in this area alone amounting to more than €30 billion by 2023. The share of electric vehicles in the Group feet is to rise to at least 40 percent by 2030. At the same time, specific CO2 emissions at all plants are to be cut 50 percent by 2025 compared with 2010. Volkswagen plans 22 million electric vehicles in ten years. Almost 70 new electric models by 2028 – instead of the 50 previously planned. As a result, the projected number of vehicles to be built on the Group’s electric platforms in the next decade will increase from 15 million to 22 million. Expanding e-mobility is an important building block on the road to a CO2-neutral balance.

## **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** |
| Row 1 | January 1 2018 | December 31 2018 | No | <Not Applicable> |

## **C0.3**

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

Argentina

Austria

Belgium

Bosnia and Herzegovina

Brazil

China

Czechia

Denmark

France

Germany

Hungary

India

Italy

Mexico

Netherlands

Poland

Portugal

Russian Federation

Slovakia

South Africa

Spain

Sweden

Switzerland

Thailand

Turkey

United Kingdom of Great Britain and Northern Ireland

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 consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.**

Operational control

## **C-TO0.7/C-TS0.7**

### **(C-TO0.7/C-TS0.7) For which transport modes will you be providing data?**

Light Duty Vehicles (LDV)

Heavy Duty Vehicles (HDV)

## **C1. Governance**

## **C1.1**

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

Yes

## **C1.1a**

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

|  |  |
| --- | --- |
| **Position of individual(s)** | **Please explain** |
| Chief Executive Officer (CEO) | The Group Board of Management also constitutes the Sustainability Board, which is the highest-ranking sustainability body in the company. The CEO chairs the Group Board of Management and as such is also chairman of the Sustainability Board. The Sustainability Board is informed by the Corporate Sustainability Steering Committee about corporate responsibility and sustainability issues (e.g. dealing with climate change risks and opportunities), as well as by the Group CO2 Steering Committee on issues related to product-level GHG emissions and efficiency at min. twice a year and takes central decisions on the described matters. As chair of the Sustainability Board, as well as the Group Board of Management, the highest level responsibility for coordinating said climate-related decisions lies with the CEO. |

## **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** | **Please explain** |
| Scheduled – all meetings | Reviewing and guiding strategy  Reviewing and guiding major plans of action  Reviewing and guiding risk management policies  Reviewing and guiding annual budgets  Reviewing and guiding business plans  Setting performance objectives  Monitoring implementation and performance of objectives  Overseeing major capital expenditures, acquisitions and divestitures  Monitoring and overseeing progress against goals and targets for addressing climate-related issues | The Group Board of Management is the highest internal decision-making level for environmental matters and also functions as the Group’s Sustainability Board. The Group-wide management of environmental protection is the responsibility of the respective Group Steering Committees. E.g. the steering committee Sustainability, or Environment and Energy. Other committees manage important individual aspects for our products – such as CO₂ and exhaust emissions. These include the Group Steering Committee for CO₂ and the Group Steering Committee for Fleet Compliance and Exhaust Emissions. The Steering Committees report to the Board of Management about several topics: reviewing the strategy 2025, the decarbonisation program, risk management, budgets business plans, setting and tracking objectives and targets for addressing climate related issues. The members of the steering committees include executives from the corporate management, business areas and representatives of the Group Works Council and the brands. Environmental officers and experts from throughout the Group meet regularly for the Group Environmental Conference in order to optimize the environmental focus along the entire value chain. For Volkswagen, climate related issues have a very high strategic and operational significance, for example regarding regulatory requirements and the respective performance of our products and the ongoing transition process of our Group within the decarbonisation programm, TOGETHER Strategy 2025 and 2025+ and the Roadmap E. Therefore, issues with relation to climate change are scheduled for all meetings (with possible exceptions in case of urgent matters). |

## **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)** | **Responsibility** | **Frequency of reporting to the board on climate-related issues** |
| Other C-Suite Officer, please specify (Member of the Group Board of Management responsible for Production – corresponding to “Chief Production Offcer”) | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |
| Environment/ Sustainability manager | Both assessing and managing climate-related risks and opportunities | 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. Description of position within structure:

The Member of the Group Board of Management responsible for Production (corresponding to a “Chief Production Officer”, however this terminology is not used at Volkswagen Group level) is part of the corporate management of Volkswagen Group, as well of the Board of Management which functions as the Sustainability Board. The position is reporting directly to the CEO/Chair of the Group Board of Management and regularly updates the Group Board of Management on issues of relevance to sustainability, environmental and energy matters.

Director Sustainability and Environmental Affairs: The Director Environmental Affairs is part of the corporate management of Volkswagen Group. The Director Environmental Affairs is reporting to the Group Board of Management on issues of relevance to environmental and energy matters (via the above mentioned Board member) in his function as Head of the Group Environment and Energy Steering Committee. The Director Group Strategy and Sustainability is part of the corporate management of Volkswagen Group. He is reporting to the Group Board of Management in his function as Head of the Group Sustainability Steering Committee, and regularly updates the Group Board of Management on issues of relevance to sustainability and environmental matters.

II. Rationale why responsibilities for climate-related issues have been assigned to these positions:

The described positions are in charge of coordinating and steering sustainability, environmental/CO2- activities decided by the Group Board of Management, which also acts as Group Sustainability Board. The size and diverse structure of Volkswagen Group and the importance of the topic demand for dedicated central Group functions below Board level for coordinating and steering climate change-related activities throughout the Group’s companies brands and regions.

III. Specific responsibilities of positions and committees:

The Member of the Group Board of Management responsible for Production: The Group Sustainability and the Environment and Energy Steering Committees, which report to the Board member and fall under his supervision, include top managers from corporate functions, as well as representatives of the Group Works Council and brands. The tasks surrounding climate change-related issues include defining strategic sustainability goals and position statements, identifying key action areas etc. The Board member as Head of Group production and environment is responsible for all production and environmental activities, including those related to low-carbon mobility.

The Group-wide management of environmental protection is the responsibility of the Board member and the Group Environment and Energy Steering Committee, with the support of numerous specialist bodies. Responsibilities include the coordination of our brands and companies regarding the development, implementation and monitoring of environmental policies, targets and metrics, conduct of research on climate change-related topics and fostering internal communication and engagement, e.g. via the regularly held Group Environmental Conferences.

IV. How climate-related issues are monitored by the postions and committees:

The Member of the Group Board of Management responsible for Production: Climate related issues are monitored by the position via regular meetings of the Group Sustainability and Environment and Energy Steering Committees and Group CO2 Steering Committee through internal and external stakeholder engagements, as well as continuous exchange (regular meeting, jour fixes etc.) with the heads of the various Group and brand research and development units, and other Group functions.

## **C1.3**

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

Yes

## **C1.3a**

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

### **Who is entitled to benefit from these incentives?**

All employees

### **Types of incentives**

Recognition (non-monetary)

### **Activity incentivized**

Efficiency project

### **Comment**

Volkswagen sets great store by enabling its employees to come up with ideas and make suggestions for improving work organization and production processes, eg. CO2-Efficiency. In 2018 Volkswagen employees across the Group submitted a total of 42.500 suggestions for improvements helping substantially to drive up the quality of our products and the efficiency of our processes, reducing costs in the Group by a total of € 128 million. Bonuses worth some €24 million were awarded to staff whose ideas were adopted in acknowledgement of their creativity and involvement in the Company.

### **Who is entitled to benefit from these incentives?**

Chief Executive Officer (CEO)

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

Volkswagen has signed off a comprehensive decarbonization program aimed at achieving a fully CO2- neutral balance over life cycle by 2050, thus fully committed to the Paris climate targets. The 2025 target is to reduce the CO2 footprint of the vehicle feet by 30 percent across the lifecycle compared to 2015. Volkswagen is therefore electrifying the vehicle portfolio, with investment in this area alone amounting to more than €30 billion by 2023. The share of electric vehicles in the Group feet is to rise to at least 40 percent by 2030. At the same time, specific CO2 emissions at all plants are to be cut 50 percent by 2025 compared with 2010. We are aligning the entire Group at any stage of management with the goals of maximum energy- and resource efficiency along the whole product life cycle. Thus we will be able to comply with market specific fuel efficiency/emission regulations, e.g. the EU limit for fleet emissions of new cars of 95 g/km CO2 by 2020. And we are making progress towards our goal of ensuring that our production plants are 45 percent more environmentally compatible by 2025. We are pursuing these goals at each management level up to the Board chairman (CEO). Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the manager. The compensation of the CEO has two components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of three components: the company bonus, the long term incentive (LTI) and the performance-related bonus. Achieving or missing these goals influences the bonus. The bonus itself is a significant component of the entire income. The Long Term Incentives Scheme for the Management of the Volkswagen Group is based on the future program TOGETHER – Strategy 2025.

### **Who is entitled to benefit from these incentives?**

Facilities manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Efficiency target

### **Comment**

Volkswagen has signed off a comprehensive decarbonization program aimed at achieving a fully CO2- neutral balance over life cycle by 2050, thus fully committed to the Paris climate targets. The 2025 target is to reduce the CO2 footprint of the vehicle feet by 30 percent across the lifecycle compared to 2015. Volkswagen is therefore electrifying the vehicle portfolio, with investment in this area alone amounting to more than €30 billion by 2023. The share of electric vehicles in the Group feet is to rise to at least 40 percent by 2030. At the same time, specific CO2 emissions at all plants are to be cut 50 percent by 2025 compared with 2010. We are aligning the entire Group at any stage of management with the goals of maximum energy- and resource efficiency along the whole product life cycle. And we are making progress towards our goal of ensuring that our production plants are 45 percent more environmentally compatible by 2025. We are pursuing these goals at each management level up to the Board chairman (CEO). Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the manager. The compensation of the CEO has two components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of three components: the company bonus, the long term incentive (LTI) and the performance-related bonus. Achieving or missing these goals influences the bonus. The bonus itself is a significant component of the entire income. The Long Term Incentives Scheme for the Management of the Volkswagen Group is based on the future program TOGETHER – Strategy 2025.

### **Who is entitled to benefit from these incentives?**

Energy manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Energy reduction target

### **Comment**

Volkswagen has signed off a comprehensive decarbonization program aimed at achieving a fully CO2- neutral balance over life cycle by 2050, thus fully committed to the Paris climate targets. The 2025 target is to reduce the CO2 footprint of the vehicle feet by 30 percent across the lifecycle compared to 2015. At the same time, specific CO2 emissions at all plants are to be cut 50 percent by 2025 compared with 2010. We are aligning the entire Group at any stage of management with the goals of maximum energy- and resource efficiency along the whole product life cycle. Thus we will be able to comply with market specific fuel efficiency/emission regulations, e.g. the EU limit for fleet emissions of new cars of 95 g/km CO2 by 2020. And we are making progress towards our goal of ensuring that our production plants are 45 percent more environmentally compatible by 2025. We are pursuing these goals at each management level up to the Board chairman (CEO). Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the manager. The compensation of the CEO has two components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of three components: the company bonus, the long term incentive (LTI) and the performance-related bonus. Achieving or missing these goals influences the bonus. The bonus itself is a significant component of the entire income. The Long Term Incentives Scheme for the Management of the Volkswagen Group is based on the future program TOGETHER – Strategy 2025.

### **Who is entitled to benefit from these incentives?**

Energy manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction project

### **Comment**

Volkswagen has signed off a comprehensive decarbonization program aimed at achieving a fully CO2- neutral balance over life cycle by 2050, thus fully committed to the Paris climate targets. We are making progress towards our goal of ensuring that our production plants are 45 percent more environmentally compatible by 2025. We are pursuing these goals at each management level up to the Board chairman. Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year by the next higher management level. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the affected manager. Energy managers’ targets are aligned with goals concerned with reduction of energy consumption. There is the goal of reducing energy and water consumption, waste and emissions of the Group’s production operations by 45 percent by 2025, which is relevant in this context. The compensation of the energy managers has three components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of the company bonus, the long term incentive (LTI) and the performance related bonus. Achieving or missing the above-mentioned goals influences the performance-related bonus of each manager. The bonus itself is a significant component of the entire income of each manager.

## **C2. Risks and opportunities**

## **C2.1**

### **(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **From (years)** | **To (years)** | **Comment** |
| Short-term | 0 | 2 | The time horizon differ from the two risk management processes „regular GRC process“ and “Quarterly Risk Process (RQP). The GRC process is focusing on systemic (inherent) risks and the RQP is focusing on acute and concrete risks and because of that we have two different time horizons. The columns “From” and “To” contains regular GRC-process relevant information. Short-term in the sense of the Quarterly Risk Process (RQP): From 0 up to 1 |
| Medium-term | 2 | 5 | See above; Medium-term in the sense of the Quarterly Risk Process (RQO): From 1 up to 2 |
| Long-term | 5 | 10 | See above; Long-term in the sense of the Quarterly Risk Process (RQO): From 2 up to undetermined |

## **C2.2**

### **(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.**

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

## **C2.2a**

### **(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Frequency of monitoring** | **How far into the future are risks considered?** | **Comment** |
| Row 1 | Six-monthly or more frequently | >6 years | The time horizons and monitoring frequencies differ from the two risk management processes „regular Governance, Risk & Compliance (GRC)“ and “Quarterly Risk Process (RQP). The GRC process is focusing on systemic (inherent) risks with a longer time horizon. To ensure that sustainability risks are considered within risk assessments, the Volkswagen list of risk focus areas comprises the separate risk module “sustainability”. The module “sustainability” was updated for the process in 2018 on a very detailed level. The quarterly RQP is focusing on acute or imminent material risks, including sustainability and therefore also climate change related risks. Focus is the current financial year respectively the next 24 months. In case of long-term risk which need urgent decision regarding the countermeasures also these risks are part of the quarterly process. |

## **C2.2b**

### **(C2.2b) Provide further details on your organization’s process(es) for identifying and assessing climate-related risks.**

By promptly identifying, accurately assessing, and effectively & efficiently managing the risks & opportunities arising from our business activities we can ensure our sustainable success & the implementation of our Strategy 2025. Our Risk Management approach is designed to follow the internationally recognized standard for Risk Management Systems (RMS) & Internal Control Systems introduced by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

To ensure that sustainability risks are considered within risk assessments, the Volkswagen list of risk focus areas – comprises the separate risk module “sustainability” which was updated on very detailed basis 2018 because of the increased importance of this focus area caused by internal and external requirements. This allows us to put a specific focus on risks related to climate change and other drivers in the area of sustainability, and determine their significance in relation to other risks.

We use competitive & environmental analyses & market studies to identify risks & opportunities.

In addition to the existing annually risk identification the quarterly risk reporting regarding acute or imminent material risks is implemented.

Company Level: Our regular Governance, Risk & Compliance (GRC) process represents our concept to identify systemic risks (including climate change risks) for the group. They are defined to have an impact which exceeds a pre-defined quantitative threshold. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). All criteria (incl. likelihood) are used to calculate a risk score between 0 and 200 (max.). The criteria of financial damage is divided into 8 sub criteria, from 0€-1Mio.€ up to > 1Bln.€. As important threshold we define a potential gross risk with more than 5 Mio. € financial damage, all these risk must be reported. In addition, the measures taken to manage and control risk are documented at management level.

We consider risk drivers and immaterial valuation to give us risk indication at an early stage. Looking at risk drivers from an aggregated view, this could tell us, for example, if natural disasters are considered to have a higher net impact on our business than in previous years. Annually the lists of risk focus areas are revised with the units. This enables Group GRC to make amendments for any changes.

In total, the list of risk focus areas contains 109 risk focus areas in total which are assigned to 18 higher-Ievel risk modules that are based around the value chain. Our approach ensures that the relevant compliance risk focus areas are an integral part of each risk module.

Overall, more than 150 risks were recorded for the risk module sustainability. All risks are annually published in our internal GRC-report.

For our quarterly risk reporting process we are identifying potential risks by involving all relevant brands and in detail the central functions of the main brand companies. The most important risks are reported to the Group Board of Management.

Asset Level: The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity faces the risk of non-compliance with a CO2 emission law, it will attach the risk to a pre-defined focus area within the risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact.

## **C2.2c**

### **(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?**

|  |  |  |
| --- | --- | --- |
|  | **Relevance & inclusion** | **Please explain** |
| Current regulation | Relevant, always included | Rationale: „current regulation“ is covered through the risk focus area catalogue which is used to identify risks within the regular GRC process. The focus area “Environmental risks arising from operational processes/production” covers among other issues this topic: “Non-compliance with environmental regulations of the law or binding standards”. Product-related regulation is covered in the focus area “Economical risks and/or risks arising from stakeholder requirements”. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage, and control risk are documented at management level. Example: The costs of compliance with regulatory requirements are considerable, and such costs are likely to increase further in the future, given the expected increased scrutiny, regulatory changes or novel interpretations of current regulations and stricter enforcement by regulators globally. A violation of applicable regulations could lead to the imposition of penalties, fines, damages, recalls, restrictions on or revocations of Volkswagen's permits and licenses. Specifically, Volkswagen identified risks related to the compliance with existing fleet emission and consumption regulations in several markets with high importance for the Volkswagen Group, like the EU (e.g. current EU fleet GHG emissions regulations until 2021) and China, as well as the implementation of updated test procedures and test cycles (e.g. WLTP test cycle). Inclusion in RM: The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of non-compliance with an existing CO2 emission law, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Emerging regulation | Relevant, always included | Rationale: The „emerging of regulations“ is covered through the risk focus area catalogue which is used to identify risks within the regular GRC process. The focus area “Environmental risks arising from operational processes/production” covers among other issues this topic: “Non-compliance with environmental regulations of the law or binding standards”. Product-related regulation is covered in the focus area “Economical risks and/or risks arising from stakeholder requirements”. Being part of the mentioned risk focus area, we consider risks from emerging regulation as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. All Group companies and units selected from among the entities in the consolidated Group on the basis of materiality and risk criteria were subject to the regular GRC process in fiscal year 2018. Example: Key aspects that Volkswagen identified are the implementation of increasingly stringent fleet emission and consumption regulations in several markets with high importance for the Volkswagen Group, like the EU (e.g. future EU fleet GHG emissions regulations 2021-2030) and China, taking new test procedures and test cycles (e.g. RDE) into account, as well as compliance with approval processes (homologation), which are becoming increasingly more complex and time-consuming and may vary by country. Inclusion in RM: The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of non-compliance with an emerging CO2 emission law, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Technology | Relevant, always included | “Technology” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Environmental risks arising from operational processes/production” covers this issue. Risks of rule of violations in the product emergence process are covered in the module “development”. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, measures taken to manage & control risk are documented at management level. Background/Risk ex.: Economic success & competitiveness of the Volkswagen Group depend on how successful we are in promptly tailoring our portfolio of products and services to the changing conditions in time. A specific example is the cost-effective implementation of electrified drivetrains. In our risk management, we consider the risk that it may not be possible to develop modules, vehicles or services within the specified timeframe, to the required quality standards, or in line with cost specifications. As we are using an increasing number of modular components as part of our modular toolkit strategy (e.g. our Modular Electrification Toolkit/MEB), it is particularly important when malfunctions do occur to identify the cause and eliminate the malfunctions as quickly as possible. Inclusion in RM: We use competitive & environmental analyses & market studies to identify risks but also opportunities with a positive impact on the design of our products, the efficiency with which they are produced, their success in the market and our cost structure. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of delayed implementation of technical developments, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements. |
| Legal | Relevant, always included | „Penal relevance“ is one of the four criteria to assess a risk into the two risk management processes; so “legal aspects” are covered and assessed for each potential risk. “Legal” risks are covered through the risk focus area catalogue, especially within the module “Legal”. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: Legal risks related to climate change may emerge in connection with the adherence to regulatory requirements. This particularly applies in the case of regulatory vagueness that may be interpreted differently by Volkswagen and the authorities responsible for the respective regulations. This could, for example, apply to regulations around the homologation of new models regarding fuel efficiency standards. At the moment, for example, there is no national or European regulation as to the form in which the WLTP-related CO₂ and consumption data must be declared for cars offered to Volkswagen customers. The implementation across the Group is steered by Group Whole Vehicle Engineering. Inclusion in RM: The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of litigation regarding interpretations of existing CO2 emission laws, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Market | Relevant, always included | “Market” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Economical risks and/or risks arising from stakeholder requirements” covers these issues. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: A combination of buyer reluctance as a result of the crisis and increases in some vehicle taxes based on CO2 emissions – as already exist in some form in 20 of 28 EU states, in all of which Volkswagen brands hold an important market share – is driving a shift in demand towards smaller segments and engines in individual markets. We counter the risk that such a shift will negatively impact the Volkswagen Group’s earnings by constantly developing new, fuel-efficient vehicles and alternative drive technologies, based on our drivetrain and fuel strategy. Inclusion in RM: We use competitive and environmental analyses and market studies to identify not only risks but also opportunities with a positive impact on the design of our products, the efficiency with which they are produced, their success in the market and our cost structure. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of changing market demands due to climate change or related issues, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Reputation | Relevant, always included | The reputation of the Volkswagen Group and its brands is one of the most important assets and forms the basis for long-term business success. Our policy on issues such as integrity, ethics and sustainability (wherein the environmental/climate impact of our products is a material aspect) is in the public focus. One of the basic principles of running our business is therefore to pay particular attention to compliance with legal requirements (including those related to climate change) and ethical principles. Example: The recent issues faced by Volkswagen in relation to exhaust emissions, or any future adverse development, have negatively influenced, or could in the future negatively influence, customers' brand perception (for example, brand image or brand confidence), which may have a negative impact on customers' purchase decisions and may impair Volkswagen's profitability and market share. The missing of self-defined environmental goals (e.g. for reducing the environmental impacts of our production by 45% until 2025 compared to 2010) could lead to reputational disadvantages in the context of our vision to be a role model for the environment, safety and integrity. Inclusion in RM: The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of changing market demands due to climate change or related issues, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements |
| Acute physical | Relevant, always included | Rationale: “Acute physical” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Risks of inadequate management of sustainability aspects” covers these issues. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: Particular events beyond our control such as natural disasters (e.g. storms, flooding) may adversely affect production in any global Volkswagen site to a significant extent. As a consequence, bottlenecks or even outages may occur, thus preventing the planned volume of production from being achieved. Inclusion in RM: We assess vulnerability of our sites to increasing weather extremes through regular environmental risks analyses. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of production interruptions because of increased weather extremes, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Chronic physical | Relevant, always included | “Chronic physical” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Risks of inadequate management of sustainability aspects” covers these issues. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: Climate change-induced variances in the availability of water might affect plant operations at several of Volkswagen’s sites, leading to effects from higher water-related OPEX and CAPEX to temporary reductions of production. Inclusion in RM: We assess vulnerability of our sites to changing climate patterns through regular environmental risks analyses. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of production interruptions because of increased weather extremes, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Upstream | Relevant, always included | “Upstream” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus areas “Risks arising from procurement practices” and “Risks of violation of human rights and labor rights” covers these issues. Example: The current trends in the automotive industry will also affect the availability of special raw materials, which Volkswagen requires for the use in electrified vehicles. The raw material and demand trend was assessed by Volkswagen last year to enable steps to be taken in a timely manner whenever bottlenecks arise. Inclusion in RM: Supply risks are identified (via the operational risk management) without delay in the procurement function through early warning systems and mitigated immediately by applying appropriate measures. |
| Downstream | Relevant, always included | “Downstream” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Risks arising from product responsibility” covers these issues. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: Downstream logistics (e.g. regarding vehicles of the Volkswagen brands being delivered to dealerships or final customers) may be affected by weather extremes (e.g. hailstorms, flooding etc. For instance, hail in July 2013 in Wolfsburg lead to a damage of cars and facilities which was followed by delays concerning the outbound logistics). Inclusion in RM: We assess vulnerability of our value chains to changing climate patterns through regular environmental risks analyses. Information about possible transport risks due to weather, strike or production restrictions are included in weekly updates on production volumes. Based on this information, there is a follow-up of the monthly sales target, including obstacles that may cause short-term sales risks. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of production interruptions because of increased weather extremes, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |

## **C2.2d**

### **(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.**

Events that may give rise to risk are identified and assessed locally in the divisions and at the investees, following the Group-wide regular GRC risk monitoring and updating process. Countermeasures are decided & introduced immediately, their effects are assessed and the information is incorporated into the planning in a timely manner. The results of the operational risk management process are incorporated into budget planning & financial control on an ongoing basis. Also, the results of risk mitigation measures that have already been taken are incorporated into the monthly forecasts on further business development. This means that the Board of Management also gets an overall picture of the current risk situation via the documented reporting channels, and can prioritize risks & decide on responses on Group level, if required.

Priorization: Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial) describing the potential impact.

Opportunities: We use competitive & environmental analyses & market studies to identify not only risks but also opportunities with a positive impact on the design of our products, the efficiency with which they are produced, their success in the market and our cost structure. Where they can be assessed, risks and opportunities that we expect to occur are already reflected in our medium-term planning and our forecast: In regular Group Planning Rounds, Group and brands executives define the strategic steps to prioritize & capitalize on opportunities.

Case study physical (following STAR scheme):

Situation: Weather extremes are occurring more frequently and with a higher severity, due to climate change.

Task: Downstream logistics (e.g. regarding vehicles of the Volkswagen brands being delivered to dealerships or final customers) may be affected by weather extremes (e.g. hailstorms, flooding etc.). For instance, hail in July 2013 in Wolfsburg lead to a damage of cars and facilities which was followed by delays concerning the outbound logistics.

Action: A: Information about possible transport risks for the Volkswagen brands are included in weekly updates on production volumes. Based on this information, there is a follow-up of the monthly sales target, including obstacles that may cause short-term sales risks. Mid-term obstacles are reported and addressed in a monthly video conference with all key decision makers and risk holders.

Result: We are thus able to minimize resulting sales risks and related negative impacts for our customers, like delivery delays, from such events.

Case study transitional 1 (following STAR scheme):

S: Volkswagen is facing challenges, but also great opportunities from a regulatory and market trend towards low-carbon mobility.

T: The economic success and competitiveness of the Volkswagen Group depend on how successful we are in promptly tailoring our portfolio of products and services to the changing conditions in time.

A: As a consequence, in 2017, Volkswagen Group’s planning round decided that by the end of 2022, more than EUR 34 billion will be invested the development of electric mobility, autonomous driving, new mobility services and digitalization. The Planning round also determines Group-wide plant and workforce assignment.

R: First series production of electric vehicles on MEB platform in Europe to be launched at Zwickau site.

Case study transitional 2

A combination of buyer reluctance as a result of the crisis and increases in some vehicle taxes based on CO2 emissions – as already exist in some European countries – is driving a shift in demand towards smaller segments and engines in individual markets.

We counter the risk that such a shift will negatively impact the Volkswagen Group’s earnings by constantly developing new, fuel-efficient vehicles and alternative drive technologies, based on our drivetrain and fuel strategy.

## **C2.3**

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

Yes

## **C2.3a**

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

### **Identifier**

Risk 1

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

Direct operations

### **Risk type**

Transition risk

### **Primary climate-related risk driver**

Policy and legal: Mandates on and regulation of existing products and services

### **Type of financial impact**

Increased costs and/or reduced demand for products and services resulting from fines and judgments

### **Company- specific description**

A risk is constituted by the possibility that the CO2 fleet emissions of the Volkswagen Group may exceed the regulatory norms which are very heterogeneous around the world and are getting more and more ambitious. Most of our worldwide car sales are affected by product efficiency regulations and standards. For Volkswagen, key regulation in this area is the EU CO2-regulation on new car fleet emissions. EU 27/28 regulation will require a value of 95g CO2/km in 2021. In December 2018, the European Council, Parliament and Commission agreed on post-2020 fleet legislation, which has yet to be conclusively published in the Official Journal of the European Union. This legislation stipulates a reduction of 15% from 2025 and 37.5% from 2030 for the European new passenger car fleets and a reduction of 15% in 2025 and 31% in 2030 for the new light commercial vehicle fleets. In each case, the starting point is the fleet value in 2021. Regulations governing fleet fuel consumption are also being developed or introduced outside the EU28, for example in India, Japan, Canada, Mexico, Saudi Arabia, Switzerland, South Korea and Taiwan. The fuel consumption regulations in China, which set an average fleet target of 5.0 liters/100 km for the period 2016–2020. Preparations for legislation up to 2025 have begun. In addition to this legislation on fleet consumption, China will impose a so-called “new energy vehicle quota” in the future. This means that from 2019 onwards, battery-electric vehicles, plug-in hybrids and fuel cell vehicles will have to account for a certain proportion of a manufacturer’s new passenger car fleet. Due to the extension of greenhouse gas legislation in the USA (the law was signed in 2012), uniform fuel consumption and greenhouse gas standards will continue to apply in all federal states in the period from 2017 to 2025. The regulations might have implications for Volkswagen's R&D process and its distribution strategy. The above mentioned markets EU, China and USA alone account for well over 80% of the Group’s aggregated passenger car sales of 10.8 million units in 2018. Hence, the compliance with such regulations is indispensable, because not being able to meet regulations would entail high costs resulting from penalty payments

### **Time horizon**

Medium-term

### **Likelihood**

Unlikely

### **Magnitude of impact**

High

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

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

100000000

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

<Not Applicable>

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

<Not Applicable>

### **Explanation of financial impact figure**

The gross risk's profile (without considering actions in place to mitigate the risk) is characterised by a high rating of the risk criteria. In consequence, the financial loss associated with this risk exceeds €100 million from a group perspective. We have entered this lower boundary of the risk impact range as it represents the only available quantification at this moment (with regards to the regular GRC process with focus on systemic risks). In the European Union there are graduated penalties in case fuel consumption regulation is not met. These penalties are calculated by multiplying the total number of vehicle registrations by €5 for the first gram of CO2 emissions above the manufacturer- specific average fleet value, €15 for the second gram, and €25 for the third gram. The penalty for exceeding the limit by up to 3 grams thus adds up to €45. Each subsequent gram above the limit will result in a penalty payment of €95.

### **Management method**

The Volkswagen Group has set milestones in all areas to be achieved in the coming years on the road to complete decarbonization by 2050. The 2025 target is to reduce the CO2 footprint of the vehicle feet by 30 percent across the lifecycle compared to 2015. Volkswagen is therefore electrifying the vehicle portfolio, with investment in this area alone amounting to more than €30 billion by 2023. The share of electric vehicles in the Group feet is to rise to at least 40 percent by 2030. The Zwickau plant will not only be the lead factory for the Modular Electric Drive Toolkit (MEB); the ID. built there will be delivered to customers with a CO2-neutral balance. Example: The first of the new-generation electric vehicles go into production in 2019: The AUDI e-tron will be followed by the Porsche Taycan. Reservations for each of these models already total 20,000 units. And electric vehicles will be brought into the mainstream with the ramp up of the Volkswagen ID. Other models in this first wave will be the ID. CROZZ, the SEAT el-born, the ŠKODA Vision E, the ID. BUZZ , and the ID. VIZZION. Cost of management: This is based on our planned investment for E-Mobility in the phase 2019-2023 of EUR 30 billion, resulting in an investment of € 6 billion per annum, on average. This value was stated below.

### **Cost of management**

6000000000

### **Comment**

The description of the risk factor, and its potential impact on the Volkswagen business, including the estimates of potential financial impact and cost of management, amount to forward-looking statements. Please see further info /disclaimer provided under section C-FI towards the end of the questionnaire.

### **Identifier**

Risk 2

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

Direct operations

### **Risk type**

Transition risk

### **Primary climate-related risk driver**

Policy and legal: Mandates on and regulation of existing products and services

### **Type of financial impact**

Other, please specify (Reduced demand for products affected by regulations )

### **Company- specific description**

More than 300 cities and towns around Europe (which is beside China one of the largest markets for Volkswagen vehicles) operate or are preparing Low Emission Zones (LEZ). This means that vehicles may be banned or in some cases charged if they enter the LEZ when their emissions are over a set level. Different vehicles are regulated, depending on the local conditions. All LEZs affect heavy duty vehicles (which are offered in Europe by our MAN and Scania brands), some affect diesel vans (as offered inter alia by our Volkswagen Commercial Vehicles and MAN brands), others also affect diesel and petrol cars (which is relevant for our various passenger car brands). Especially with regard to commercial vehicles, the European market plays a material role: With over 69% share in vehicles sold, Europe is by far Scania’s most important Market. The same holds true for MAN Trucks and Buses with over 75% , and Volkswagen Commercial Vehicles with over 83 % (referring to Europe/other markets). LEZ in this market therefore pose a challenge for Volkswagen Group. These regulations force vehicle owners to adapt which in turn forces us to adapt likewise and provide appropriate vehicles. Besides, it can be expected that there will be a general change in customer behaviour and expectations towards higher environmental awareness of both business and consumer customers. If Volkswagen should not be able to meet certain levels and expectations, there is the risk of decreased demand for vehicles of the above mentioned types, affecting the mentioned Volkswagen brands in particular. This development in particular constitutes the risk of shrinking sales for Volkswagen. It is therefore essential and self-evident to Volkswagen to develop our car fleet, making the vehicles even cleaner and more efficient and thereby meeting existing regulations and customer demands.

### **Time horizon**

Medium-term

### **Likelihood**

Unlikely

### **Magnitude of impact**

Medium-high

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

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

100000000

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

<Not Applicable>

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

<Not Applicable>

### **Explanation of financial impact figure**

The gross risk's profile (without considering actions in place to mitigate the risk) is characterised by a high rating of the risk criteria. In consequence, the financial loss associated with this risk exceeds €100 million from a group perspective. We have entered this lower boundary of the risk impact range as it represents the only available quantification at this moment.

### **Management method**

As battery-electric vehicles are locally emission-free, they are not affected by LEZ limitations. With our decarbonization program and electrification initiative "Roadmap E", Volkswagen will have electrified its entire model portfolio by 2030 at the latest. Group brands will bring almost 70 new electrified models to customers by 2028. According to our forecasts, one in four new vehicles from our Group will feature a purely electric drivetrain by 2025. Depending on how the market develops, this could be as many as three million electric vehicles per year. Example/case study: MAN is starting volume production of its first all-electric light commercial vehicle, the MAN eTGE. The benefits are maximized if the vehicle is charged with renewable electricity, bringing service-life CO2 emissions down to almost zero. To see the environmental advantages in concrete terms, consider the following theoretical example: If a diesel-powered delivery van with an official average fuel consumption of 7.2 l/100 km and covering 80 km a day is replaced by the electrically powered MAN eTGE, the reduction in CO2 emissions per working day amounts to 14.9 kg. Based on 240 working days a year, that adds up to total annual CO2 savings of approximately 3.6 tons Cost of management: This is based on our planned investment for E-Mobility in the phase 2019-2023 of EUR 30 billion, resulting in an investment of EUR 6 billion per annum, on average. This value was stated below.

### **Cost of management**

6000000000

### **Comment**

The description of the risk factor, and its potential impact on the Volkswagen business, including the estimates of potential financial impact and cost of management, amount to forward-looking statements. Please see further info /disclaimer provided under section C-FI towards the end of the questionnaire.

### **Identifier**

Risk 3

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

Direct operations

### **Risk type**

Physical risk

### **Primary climate-related risk driver**

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

### **Type of financial impact**

Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)

### **Company- specific description**

Volkswagen has production facilities in 31 countries, of which some are exposed to varying levels and types of climate related physical risks, such as floods, tropical storms, water scarcity etc., which may cause temporary production downtime/unavailability of facilities. The Impact on facilities may be both direct through physical damage and indirect, where large numbers of workers are affected and therefore unavailable. Also, local infrastructure needed to sustain the automotive production process (transportation, energy, water etc.) may be affected. An example is the Volkswagen plant in Puebla/Mexico: Due to a depletion of the water resources in the area of Puebla, that is exposed to water stress, ground water levels were decreasing in the last decades. If not managed properly, Volkswagen might have a problem with its water supply in the future which would lead to a stop of production.

### **Time horizon**

Medium-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

Medium-high

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

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

100000000

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

<Not Applicable>

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

<Not Applicable>

### **Explanation of financial impact figure**

The gross risk profile (without considering actions in place to mitigate the risk) shows a difference between the material and immaterial evaluation. While the potential material damage exceeds €100 million, equaling a high impact, the immaterial criteria are rated at a medium level. This is because the resilience against natural catastrophes will not be considered a critical organisation´s ability by investors and customers compared to e.g. compliance with new CO2 regulations. We have entered this lower boundary of the risk impact range as it represents the only available quantification at this moment.

### **Management method**

Volkswagen has established various central and local actions to mitigate risks caused by natural disasters, including emergency and evacuation plans to protect employees, techniques and facilities. In order to prevent downtime in general, lost output, rejects and reworking, we use the TPM (Total Productive Maintenance) method at our production facilities. We analyzed all production sites using maplecroft water stress index and tailored surveys. Consequently, measures to improve situation at risk sites are determined. Case study: Mexico, Puebla: Groundwater from "Izta-Popo" surrounding is used as water supply. Volkswagen is funding reforestation of Alpine conifers, creation of dry wells and dams. To date, Volkswagen has supported the project with over EUR 2.5 million, with help of 39 suppliers and water/wastewater operator of Puebla. Cost of management: We consider the costs associated with the countermeasures to address this risk to be at a low level compared to other risk focus areas; based on the assumption that Management involvement will in most cases be limited to subject matter experts. In general, Operating costs for environmental protection totaled €230 million in Germany alone. We state this figure below to give an estimate of the magnitude of environmental protection costs.

### **Cost of management**

230000000

### **Comment**

The description of the risk factor, and its potential impact on the Volkswagen business, including the estimates of potential financial impact and cost of management, amount to forward-looking statements. Please see further info /disclaimer provided under section C-FI towards the end of the questionnaire.

### **Identifier**

Risk 4

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

Customer

### **Risk type**

Transition risk

### **Primary climate-related risk driver**

Market: Changing customer behavior

### **Type of financial impact**

Reduced demand for goods and/or services due to shift in consumer preferences

### **Company- specific description**

The automotive industry faces a process of transformation with far-reaching changes. Electric drives, connected vehicles and autonomous driving are associated with both opportunities and risks for our sales. In particular, more rapidly evolving customer requirements, swift implementation of legislative initiatives and the market entry of new competitors from outside the industry will require changed products, a faster pace of innovation and adjustments to business models. Risks could be arising from a lack of monitoring and identification of environmental framework requirements and trends as well as insufficient adaptation / failure to comply with customer expectations regarding climate change, energy consumption and CO2 emissions. Specific: Changing of Volkswagen customers’ awareness regarding CO2 emission topics may lead to new expectations that influence the customers’ buying decision. This may especially apply to fleet customers with a rising demand for highly efficient vehicles: Due to their high lifetime mileage, cost of ownership of fleet vehicles is largely influenced by fuel efficiency. One indication for this risk is the increasing number of fleet customers expecting us to provide CO2 data of their fleet via the CDP Supply Chain Program, indicating their high interest in fuel- efficient vehicles. We answer the questionnaires since 2013 . A possible failure to comply with fleet customer expectations may result in a drop of related sales (direct impact), which, given the 2018 market share of Volkswagen Group of around 44% in this customer segment in Germany and 25% in Europe, could significantly affect total sales. Failure to meet these expectations could also affect the company´s reputation (indirect impact); especially in the context of the goal to become a role model for the environment, which the Volkswagen Group set as part of the current Group Strategy Together 2025.

### **Time horizon**

Medium-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

High

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

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

235000000

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

<Not Applicable>

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

<Not Applicable>

### **Explanation of financial impact figure**

Not only regulatory requirements have to be complied with but requirements from relevant stakeholders should be considered also. Therefore this risk has a high financial impact that exceeds 100 million € from a group perspective. To demonstrate the effect of changing sales: Based on our 2018 financial year figures a decrease of 0.1% in sales would imply a negative effect of approx. €235 million on the Group annual revenue.

### **Management method**

Volkswagen aims to reduce the CO2 footprint of the vehicle fleet by 30 percent across the lifecycle compared to 2015. Our fuel and drivetrain strategy is paving the way for sustainable, carbon-neutral mobility. The goal is to increase drive system efficiency with each new model generation – irrespective of whether combustion engines, hybrids, plug-in hybrids, pure electric drives, or fuel cell drive systems are used. Our modular matrix platforms are designed so that different drive systems can be deployed in various combinations and flexibly fitted on production lines in manufacturing facilities around the world. Case study: In 2017 we started the series production of an exceptionally fuel-efficient powertrain for our latest BlueMotion models, the 96 kW 1.5 TSI evo. Thanks to our new “sailing” mode, whereby the engine is switched off while coasting, and other technical innovations, the 1.5 TSI evo can achieve fuel efficiency of as little as 1.0 l/100 km in real-world conditions, depending on the customer’s driving style. Cost of management: We are making massive investments in the mobility of tomorrow – but without neglecting current technologies and vehicles that will continue to play an important role for decades to come. This is why we are putting almost €20 billion into our conventional vehicle and drive portfolio in 2018 (provided as cost of management below), with a total of more than €90 billion scheduled over the next five years.

### **Cost of management**

20000000000

### **Comment**

The description of the risk factor, and its potential impact on the Volkswagen business, including the estimates of potential financial impact and cost of management, amount to forward-looking statements. Please see further info /disclaimer provided under section C-FI towards the end of the questionnaire.

## **C2.4**

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

Yes

## **C2.4a**

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

### **Identifier**

Opp1

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

Direct operations

### **Opportunity type**

Products and services

### **Primary climate-related opportunity driver**

Shift in consumer preferences

### **Type of financial impact**

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

### **Company-specific description**

The car industry worldwide is highly affected by CO2 regulations. Regulatory requirements can generally be seen as an incentive for innovation. Most of our worldwide car sales are affected by product efficiency regulations and standards. EU 27/28 regulation will require a value of 95g CO2/km in 2021. Post-2020 fleet legislation stipulates a reduction of 15% from 2025 and 37.5% from 2030 for the European new passenger car fleets and a reduction of 15% in 2025 and 31% in 2030 for the new light commercial vehicle fleets. In each case, the starting point is the fleet value in 2021. The fuel consumption regulations in China were continued into the period 2016–2020 with a target of 5.0 liters/100 km. Preparations for legislation up to 2025 have begun. In addition to this legislation on fleet consumption, China will impose a so-called “new energy vehicle quota” in the future. This means that from 2019 onwards, battery-electric vehicles, plug-in hybrids and fuel cell vehicles will have to account for a certain proportion of a manufacturer’s new passenger car fleet. Due to the extension of greenhouse gas legislation in the USA (the law was signed in 2012), uniform fuel consumption and greenhouse gas standards will continue to apply in all federal states in the period from 2017 to 2025. The regulations might have implications for Volkswagen's R&D process and its distribution strategy. The above mentioned markets EU, China and USA alone account for well over 80% of the Group’s aggregated passenger car sales of 10.8 million units in 2018. Specific: CO2 regulations will increasingly shape the markets for Volkswagen’s products via a growing demand for low-carbon mobility options like electric mobility. We expect to build around 22 million vehicles on our Group’s electrification platforms over the next ten years. The electric-powered proportion of our fleet in Europe and China will rise to around 40 percent by 2030. Globally, Volkswagen sold over 179.000 vehicles equipped with eco friendly drives (gas, hybrid, all electric), which is still only 1.71% of our total sales, but represents a 12% increase over 2017. This shows the dynamic development of this market segment, which we expect to generate significant additional revenues in the medium term.

### **Time horizon**

Medium-term

### **Likelihood**

Very likely

### **Magnitude of impact**

High

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

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

59000000000

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

<Not Applicable>

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

<Not Applicable>

### **Explanation of financial impact figure**

We intend to sell between two and three million Battery-Electric Vehicles (BEVs) per year by 2025 – equivalent to around 20–25% of the Group’s expected annual total unit sales. To give a rough estimate of the order of magnitude, we have entered the equivalent of 25% of our 2018 total revenue (€236 billion). Actual effects may differ.

### **Strategy to realize opportunity**

Volkswagen Group has launched the most comprehensive electrification initiative in the global automotive industry with its "Roadmap E": Volkswagen is electrifying its entire model portfolio, with full coverage to be reached by 2030 at the latest. This means that, by then, there will be at least one electrified version of each of the 300 or so Group models across all brands and markets. This makes Volkswagen the first big mobility group to have put a date on the electrification of its entire fleet. The Group brands will bring a total of almost 70 purely battery-powered vehicles to customers by 2028. In total, we will build around 22 million vehicles on our Group’s electrification platforms over the next ten years. The electric-powered proportion of our fleet in Europe and China will rise to around 40 percent by 2030. Example / case study: The ID.3 is the first vehicle based on the Modular Electric Drive Toolkit mentioned previously. The MEB has been developed as an all-electric platform. It makes optimum use of the latest technologies – in terms of performance, space and digital offerings. The MEB means we can achieve ranges in excess of 550 kilometers (in accordance with WLTP). Cost to realize: This is based on our planned investment for E-Mobility in the phase 2019-2023 of EUR 30 billion, resulting in an investment of EUR 6 billion per annum, on average.

### **Cost to realize opportunity**

6000000000

### **Comment**

### **Identifier**

Opp2

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

Direct operations

### **Opportunity type**

Products and services

### **Primary climate-related opportunity driver**

Ability to diversify business activities

### **Type of financial impact**

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

### **Company-specific description**

Mobility is one of the key conditions for economic growth. The latest challenge is to cater to the growing demand for mobility despite diminishing resources and, in the process, reduce its negative effects on the environment. Holistic mobility concepts have to be efficient, sustainable, customer-oriented and, above all else, designed in such a way that they are accessible anytime and anywhere. We at Volkswagen are developing ground-breaking mobility solutions for our customers that will shape the future in this area. We do not limit our focus to automotive mobility, but take in other modes of transport as well and examine structural issues such as urbanization, urban development and the quality of transport infrastructure. More specific: By the year 2050, the United Nations predicts that the world’s population will have grown to more than 9.5 billion people. It estimates that the global urban population will double, with more than two thirds of people living in cities. This will place increasing strain on urban mobility systems throughout the world. All urban stakeholders will therefore need to make more effective use of limited urban space, e.g. by using shared transportation and multimodal mobility services. Volkswagen is well prepared due to our early engagement in national and international initiatives and our own Mobility Research Department. In this context, Volkswagen wants to set standards with integrated, intelligent mobility solutions and innovative transport systems. To this end, we are opening up new fields of business and developing novel business models. One objective of our Group future program TOGETHER Strategy 2025 is to make Volkswagen one of the three largest providers of efficient, comfortable mobility services worldwide by 2025. Our mobility business MOIA is to become one of the leading providers of innovative transport services and will develop profitable and globally scalable business models. Strategic investments and partnerships are also being sought. Our strategic goal is to make Volkswagen one of the world’s leading providers of efficient and convenient smart mobility services by 2025, with a portfolio encompassing all brands and both “mobility as a service” and “vehicle on demand” services.

### **Time horizon**

Long-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

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

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

1000000000

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

<Not Applicable>

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

<Not Applicable>

### **Explanation of financial impact figure**

The Volkswagen Group intends to generate a substantial share of its sales revenue from this new business by 2025. In the long term, Volkswagen aims to generate billions in earnings in the mobility services business. We have provided a possible future annual revenue of EUR 1 billion as a reference for the estimated order of magnitude.

### **Strategy to realize opportunity**

One building block of our Strategy TOGETHER 2025 is the establishment of a cross-brand mobility solutions business: With the Volkswagen Group’s new company for mobility services, MOIA, we are laying the foundations of lasting success in tomorrow’s world of mobility – across the Group, and across all our brands. MOIA develops and markets its own mobility services, either independently or in partnership with cities and existing transport systems. In parallel with MOIA, the brands continue to move forward with their own specific services. Example: MOIA has been testing its integrated ride-pooling service in Hanover since October 2017. This service complements the city’s local mass transit network and is set to become available to the general public in 2019. The MOIA electric vehicles have room for six people and a range-between-charges of around 300 kilometers (measured according to WLTP). Their empty battery can be charged to up to 80 percent capacity in about 30 minutes – providing the necessary level of everyday practicality. Meanwhile, in Hanover, MOIA’s shared taxis have been in operation for some time now. The test phase involving 35 Volkswagen Multivan T6 vehicles was successfully completed in July 2018, since when anyone in Hanover can call up a MOIA cab. Explanation cost of management: Investments related to our mobility services activities are currently not published. Therefore, we don't provide a figure here.

### **Cost to realize opportunity**

### **Comment**

### **Identifier**

Opp3

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

Direct operations

### **Opportunity type**

Resilience

### **Primary climate-related opportunity driver**

Participation in renewable energy programs and adoption of energy-efficiency measures

### **Type of financial impact**

Other, please specify (Reduced operating costs)

### **Company-specific description**

Our Group has a long tradition of commitment to environmental protection. It is firmly embedded in our TOGETHER – Strategy 2025 as one of our four corporate objectives. As one of the world’s leading providers of sustainable mobility, we also want to become an Environmental Role Model. We are working toward this long-term goal by taking responsibility for the environment. Specific: Besides wider social benefits, which are difficult to quantify, our sustainability efforts can also lead to reduced operational costs, e.g. in the case of energy efficiency and emission reduction activities. Reduction of the direct energy consumption per vehicle produced (which was at approx. 2.000 kWh/vehicle in 2018, as opposed to approx. 2.500 kWh in 2010 across all of Volkswagen’s brands and factories and including electricity, heat and fuel consumption) directly correspond to cost savings for Volkswagen.

### **Time horizon**

Current

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium

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

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

21800000

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

<Not Applicable>

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

<Not Applicable>

### **Explanation of financial impact figure**

In 2018, The Volkswagen Group has implemented over 800 documented measures and activities that save more than 140 kt CO2e per year, and will lead to direct annual cost savings of over €21 million.

### **Strategy to realize opportunity**

The reduction in environmental impacts across the Group is the result of specific environmental programs by the brands, including: Think Blue. Factory. – Volkswagen Passenger Cars and Volkswagen Commercial Vehicles; ultra-strategy – Audi; Green Factory – ŠKODA; ECOMOTIVE Factory – SEAT; Environmental Factory – Bentley; Resource-efficient Production – Porsche; Blue Rating – Scania; Climate Strategy – MAN. We encourage close integration and communication between the Report brands worldwide in order to create synergies, for example with our Environment Task Force. A Group-wide decarbonization program is currently being finalized to reduce CO₂ emissions throughout the entire life cycle of products and services. The program covers the setting of CO₂ targets to be met by 2025, Group-wide CO₂ measures and tools, and control elements. Example: In 2018, around 57,000 MWh of energy and 18,000 t of CO₂ was saved across sites through optimizing ventilation. Painting vehicle bodies is the most energy-intensive process. Most energy-related analyses thus focus on this area. In the reporting period, 165,000 MWh of energy and 34,000 t of CO₂ was saved at Group sites through optimization measures in the paint shops. Cost to realize: In 2018, we invested more than €29 million in documented emission reduction activities across our global operations.

### **Cost to realize opportunity**

29000000

### **Comment**

### **Identifier**

Opp4

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

Supply Chain

### **Opportunity type**

Energy source

### **Primary climate-related opportunity driver**

Use of lower-emission sources of energy

### **Type of financial impact**

Reduced exposure to GHG emissions and therefore less sensitivity to changes in cost of carbon

### **Company-specific description**

Compared to vehicles with an internal combustion engine, e-vehicles have less of an impact on the environment, as they produce no local emissions during use. Our calculations based on Golf-class vehicles show that the CO₂ balance of e-vehicles is better over the entire life cycle too. Nevertheless, e-mobility also leads to greenhouse gas emissions – both as a result of electricity use and during production. Overall, the majority of emissions will shift towards production in the future, primarily as a result of battery manufacture. What is crucial is that Volkswagen not only builds electric cars, but also monitors the complete life cycle from raw materials to recycling. For the electric car is only as clean and green as the electricity used to build and charge it. Cell production, in particular, is still very energy-intensive, and charging cars with coal-derived power is a burden to the overall environmental equilibrium. In order to tailor electric cars sustainably towards climate protection, it is precisely these areas that have to be addressed. The strategic goal of Volkswagen of becoming the leading worldwide provider of e-mobility can make the focus on consistent decarbonization a strong competitive edge: Besides reputational benefits which we can use to further build our brands, we also reduce the exposure to greenhouse gas emissions along the entire value chain. In the likely case of increasing external costs of greenhouse gas emissions, this leads to competitive cost advantages for Volkswagen and our value chain partners - from suppliers to end customers. Our Life Cycle Assessments show that improvements in lithium-ion battery technology and supply chain optimizations lower the carbon footprint during battery manufacturing for the first Volkswagen ID. model planned for 2020 by more than 25 percent per kilowatt hour (kWh) of battery capacity compared with the e-Golf. When using regenerative energy, the reduction potential is almost 50 percent.

### **Time horizon**

Current

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium

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

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

6400000

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

<Not Applicable>

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

<Not Applicable>

### **Explanation of financial impact figure**

The Group’s upstream Scope 3 emissions from Purchased Goods and Services alone amount to over 64 million t CO2 in 2018. A hypothetical global price on GHG emissions of as little as 10 EUR / ton would thus imply a burden of over EUR 640 million p.a. on our supply chain. In such a scenario, if we are able to reduce these upstream emissions by as little as 1% per year, economic advantages of EUR 6.4 million p.a. would occur (in comparison to emissions from Purchased Goods and Services remaining unchanged).

### **Strategy to realize opportunity**

The Group has set milestones in all areas to be achieved in the coming years on the road to complete decarbonization by 2050. The measures follow three principles: first, effective and sustainable CO2 reduction. Second, switch to renewable energy sources for power supply. Third, compensate for remaining emissions that cannot be avoided. We use the decarbonization index (DCI) as a strategic indicator in this context to document our progress. It measures products’ CO₂ emissions along the entire value chain – from the extraction of raw materials through the use phase to the recycling of end-of-life vehicles (Scope 3). The 2025 target is to reduce the CO2 footprint of the vehicle fleet by 30 percent across the lifecycle compared to 2015. Example: The ID. is the Group's first model to be produced (starting 2019) in a balance sheet that is CO₂-neutral. Its battery cells are supplied by LG Chem, which is setting up a production facility in Poland for this purpose. Volkswagen fixed a firm agreement with LG Chem that only certified green electricity would be used to manufacture the battery cells for ID. By this, CO₂ emissions from this step will be reduced to almost zero. Cost to realize: Volkswagen Supervisory Board approved investments of just under EUR 1 bn. for own battery cell production in Germany, provided the general economic conditions for that exist, incl. availability of renewable electricity. Final decision on plans and concrete investments is expected by end of 2019.

### **Cost to realize opportunity**

1000000000

### **Comment**

## **C2.5**

### **(C2.5) Describe where and how the identified risks and opportunities have impacted your business.**

|  |  |  |
| --- | --- | --- |
|  | **Impact** | **Description** |
| Products and services | Impacted | Description of impact: As part of a Group-wide initiative – and with a view to the legal regulations on emissions – we are currently developing a forward-looking vehicle and drivetrain portfolio: to achieve our goal of sustainable mobility, we have set ourselves the objective of increasing drive system efficiency with each new model generation – irrespective of whether the means of propulsion is a combustion engine, a hybrid, a plug-in hybrid, a purely electric drive, or a fuel cell drive system. As of 2017, the Volkswagen Group is launching the most comprehensive electrification initiative in the global automotive industry with its "Roadmap E": Volkswagen will have electrified its entire model portfolio by 2030 at the latest. This means that, by then, there will be at least one electrified version of each of the 300 or so Group models across all brands and markets. This makes Volkswagen the first big mobility group to have put a date on the electrification of its entire fleet. The Group brands will bring a total of almost 70 purely battery-powered vehicles to the market by 2028. Magnitude: Impacts in this area may be considered highly significant, and affect the entire Volkswagen group, with all brands. We anticipate that already by the year 2025, one in four new Volkswagen Group vehicles worldwide will have a purely electric drive; depending on the market development, this could be up to three million electric vehicles a year. |
| Supply chain and/or value chain | Impacted for some suppliers, facilities, or product lines | Description of impact: We extend the responsibility for environmental effects of our vehicles to our suppliers throughout the value chain. We believe that we and our partners in the supply chain have a particular responsibility here. We thus require that our suppliers use electricity from renewable sources when manufacturing high-voltage batteries (and other parts of the Modular Electric Toolkit). We have also been actively involved in the CDP Supply Chain Program (SCP) since 2015. In 2018, we increased the number of suppliers who we survey as part of the SCP regarding responsibility for our climate and water to more than 200. Magnitude. This equates to 89% (2017: 43%) of our production-related procurement spending (excluding services, VW Brazil, Scania and our joint ventures in China). With the climate protection survey, we achieve an above-average response rate of 79% (83% of production-related procurement spending). According to our suppliers’ self-assessments, they reduced their overall emissions by a total of 11.7 million t of CO₂-e compared to the previous year (2017: 16.5 million t of CO₂-e). Since 2016, the CDP has included science-based targets (SBTs) in the questionnaire: 29% of our suppliers questioned have already set SBTs or have undertaken to set such targets. For the first time ever, we also carried out a survey on responsibility for water in 2018. We achieved an above-average response rate of 66% (78% of production-related procurement spending) here |
| Adaptation and mitigation activities | Impacted | Description of impact: Protecting the environment is one of four goals firmly anchored in our future program TOGETHER – Strategy 2025. As a world-leading provider of sustainable mobility, we want to be a role model on environmental issues. We are working towards this goal, taking responsibility for the environment every single day. To this end, we have defined the following target areas: 1. To continuously improve our carbon footprint; 2. To continuously reduce harmful emissions; 3. To continuously reduce resource consumption We use the decarbonization index (DCI) as a strategic indicator to document our progress. This measures the products’ CO2 emissions along the entire value chain. The DCI is calculated from the ratio of the carbon footprint to the number of vehicles produced. It encompasses both direct and indirect CO2 emissions at the individual production sites (Scope 1 and 2) as well as all further CO2 emissions over the life cycle of the vehicles sold – from the extraction of raw materials, to vehicle use and final disposal (Scope 3). The DCI thus enables transparent, comprehensive tracking of progress toward climate-friendly mobility. Magnitude: Volkswagen is making significant investments in mitigation activities. At our Wolfsburg site alone, we will invest €400 million in the conversion of the existing power plants to natural gas firing. The modernization measures and the move away from hard coal will cut annual CO2 emissions by 1.5 million tons. This corresponds to a reduction of close to 60 percent at the Wolfsburg site or, to make the figure more tangible, the combined annual CO2 emissions of 870,000 cars. For the entire Group, this translates into a global CO2 reduction of 15 percent. |
| Investment in R&D | Impacted | Description of impact: The Volkswagen Group has launched a comprehensive electrification offensive in the form of Roadmap E. By 2025, we plan to offer our customers around the world more than 80 new electric models, including some 50 purely battery-driven vehicles and 30 plug-in hybrids. By 2030, the Volkswagen Group aims to electrify its entire model portfolio – from high-volume models to premium vehicles. This will mean offering at least one electric version of each of our approximately 300 models across all Group brands. Investment in this area alone is amounting to more than €30 billion by 2023. In total, the Group will invest €44 billion for e-mobility, autonomous driving, new mobility services and the digitalization of vehicles and plants. We are also intensively researching options for producing fuels from renewable electricity, enabling carbon-neutral operation of combustion engines. Projects such as Audi e-gas (power-to-gas) and SEAT’s SMART Green Gas (waste-to-gas) are examples of our commitment in this area. Last but not least, we are working under Audi’s leadership to make fuel cell technology ready for market. Magnitude: R&D investments as response to the identified risks & opportunities can be considered highly significant in absolute terms, as well as in relation to overall R&D expenses. These amounted to over €13 billion in 2018, €5 billion of which were capitalized development costs. |
| Operations | Impacted | Description of impact: One element of our production strategy is the environmentally exemplary production initiative. This involves us working on four key issues in the period leading up to 2025: Setting and achieving ambitious environmental targets for production, Developing a long-term vision for environmental targets in production and rolling it out across the Group, Strengthening employees’ environmental awareness and integrating relevant environmental aspects into processes, Achieving top positions in renowned environmental rankings. In this context, the Volkswagen Group has set itself the goal of reducing the five key environmental indicators of energy and water consumption, waste for disposal, and CO2 and VOC emissions in production by 45% for each vehicle produced by 2025 – starting from 2010 levels. Specific CO2 emissions at all plants are to be cut 50 percent by 2025 compared with 2010. This objective applies to all of the Group’s production locations and is derived from our environmental requirements for production processes, which are anchored in the Group’s environmental principles. Magnitude: We anticipate a significant, group-wide impact by the identified risks and opportunities. In Germany alone, investment for environmental protection at our Volkswagen AG production sites was €13 million in 2018. Operating costs for environmental protection in Germany were about €230 million, 17.6 % of that for air pollution control and 6.2% for climate protection. This is partly outweighed by the cost savings reached by energy efficiency measures. |
| Other, please specify | Impacted | Sustainability Management and stewardship: Description: As part of its efforts to continuously improve and expand its sustainability management, the Volkswagen Group appointed an international Sustainability Council in 2016 made up of renowned experts from the academic world, politics and society. The members of the council establish their own working methods and areas of focus independently and consult with the Board of Management, senior managers and the employee representatives regularly for the purposes of consultation, exchanging information and initiating action. Magnitude: The Volkswagen Group is initially providing €20 million in funding for projects proposed and promoted by the Sustainability Council for the years 2017 and 2018. The first projects relate to innovation and cultural change in the area of sustainable mobility, an international crisis prevention initiative as a result of climate change and an academic study on the future shape of the transport and climate policy framework. |

## **C2.6**

### **(C2.6) Describe where and how the identified risks and opportunities have been factored into your financial planning process.**

|  |  |  |
| --- | --- | --- |
|  | **Relevance** | **Description** |
| Revenues | Impacted | We expect sales of battery-electric vehicles to grow exponentially over the coming years; following our strategy TOGETHER 2025, we project that they will make up between 20 to 25% of total sales by 2025. Magnitude: The described increase in sales will constitute an equally significant part of our revenue. |
| Operating costs | Impacted for some suppliers, facilities, or product lines | 1. Transition risks/regulatory: In the EU, there is a new, more time-consuming test procedure for determining pollutant and CO2 emissions as well as fuel consumption in passenger cars and light commercial vehicles known as the Worldwide Harmonized Light-Duty Vehicles Test Procedure (WLTP). This affects all Volkswagen passenger car brands, which have to fulfil WLTP homologation for all new vehicles sold from September 2018. Magnitude: This leads to significantly higher costs and workload for homologation for each model. As the Group brands are offering several hundred model variants, this may imply significant costs. 2. Transition opportunities (energy efficiency/environmental protection): Many measures strengthening environmental protection are associated with additional operating costs. Operating costs for environmental protection in Germany alone were about €230 million. This is partly compensated by the fact that, for example, energy efficiency measures contribute to cost savings. In 2018 alone The Volkswagen Group has implemented over 800 documented measures and activities that save more than 140 kt CO2e per year, and will lead to direct annual cost savings of over €21 million. |
| Capital expenditures / capital allocation | Impacted | To ensure the Volkswagen Group’s future viability, we will continue to mobilize our pronounced strengths in innovation and technology further and vigorously invest in e-mobility, digitalization, new mobility services and autonomous driving in the coming years. In our current planning for 2019, the majority of capex (investments in property, plant and equipment, investment property and intangible assets, excluding capitalized development costs) will be spent on new products and the continued rollout and further development of the modular toolkit. The focus is on the electrification and digitalization of our vehicles, in particular through the development of the Modular Electric Drive Toolkit (MEB). We are also investing in the modification of selected locations for the production of electric vehicles. The Automotive Division’s ratio of capex to sales revenue will fluctuate around a level of 6.5–7.0%. Besides capex, investing activities will include additions to capitalized development costs. Among other things, these reflect upfront expenditures in connection with the electrification and updating of our model range. This underlines that the described risks and opportunities have a highly significant impact on planned capital expenditures. |
| Acquisitions and divestments | Impacted for some suppliers, facilities, or product lines | In 2018, Volkswagen Group has concluded the planned increase in its stake in the California technology company QuantumScape. Volkswagen is investing 100 million USD in the battery specialist, thus becoming its largest automotive shareholder. Volkswagen will now take a seat on the board of directors of QuantumScape. Furthermore, Volkswagen and QuantumScape have formed a joint venture to enable an industrial level of production of solid-state batteries. Volkswagen and QuantumScape are combining their strengths in the new joint venture: Volkswagen is contributing its production expertise and know-how in scaling projects, while QuantumScape brings its technology leadership in the field of solid-state batteries to the joint venture. The shared goal is to enable an industrial level of production of solid-state batteries. One target is to establish a production line for these batteries by 2025. Magnitude: Though the volume of this acquisition can be considered moderate compared to overall annual investment on Group level, it bears high strategic relevance. |
| Access to capital | Not impacted | We aim to finance the investments in our Automotive Division from our own capital resources and expect cash flows from operating activities to exceed the Automotive Division’s investment requirements. |
| Assets | Impacted | Invested capital will continue to increase further in 2019 as a result of investments in new models, in the development of alternative drives and modular toolkits and in future technologies. This trend will likely continue based on the capital expenditure planning described above: Up until 2030, the Group will earmark over €20 billion for direct investments in the industrialization of e-mobility: in new vehicles based on two entirely new electric platforms, in upgrading plants and in training for the workforce, in charging infrastructure, in trading and sales and, last but not least, in battery technology and production. Magnitude: The potential magnitude is significant, illustrated by our plans that 16 locations around the globe are to produce battery powered vehicles by the end of 2022. |
| Liabilities | Not yet impacted | Liabilities may arise for Volkswagen from possible penalties for exceeding the market-specific regulatory norms for fleet emissions limits. Specific/timeframe: For Volkswagen, key regulation in this area is the EU CO2-regulation on new car fleet emissions. EU 27/28 regulation will require a value of 95g CO2/km in 2021. Magnitude: In the European Union there are graduated penalties in case fuel consumption regulation is not met. These penalties are calculated by multiplying the total number of vehicle registrations by €5 for the first gram of CO2 emissions above the manufacturer- specific average fleet value, €15 for the second gram, and €25 for the third gram. The penalty for exceeding the limit by up to 3 grams thus adds up to €45. Each subsequent gram above the limit will result in a penalty payment of €95. Depending on the deviation from the target value, penalties may be significant. Hence, we are sparing no effort to cut the average CO2 emissions of our European new car fleet to 95 gram/km by 2020. |
| Other | Not impacted | We have not identified other impacts on the financial planning process which could be disclosed. |

## **C3. Business Strategy**

## **C3.1**

### **(C3.1) Are climate-related issues integrated into your business strategy?**

Yes

## **C3.1a**

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

Yes, qualitative and quantitative

## **C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b**

### **(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b) Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.**

Yes

## **C3.1c**

### **(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.**

i) How the strategy has been influenced: Climate change, resource availability and urbanization are among the major global challenges facing us in the Volkswagen Group as one of the biggest car producers. Our TOGETHER – Strategy 2025 aims to make a significant contribution to ensuring that mobility has less impact on the environment. Under the new vision "Shaping mobility - for generations to come." we are providing answers to the challenges of today and tomorrow with our sharpened TOGETHER 2025+ Group Stategy in mid 2019. Our goal is to make mobility sustainable for us and for future generations. We are also committed to the UN SDG’s. Our aim is to become a role model for environmental protection. We believe the transformation of our core business is the right way to meet these objectives.

Our Group has a long tradition of commitment to environmental protection. It is firmly embedded in our TOGETHER – Strategy 2025 as one of our four corporate objectives. As one of the world’s leading providers of sustainable mobility, we also want to become an Environmental Role Model. We are working toward this long-term goal by taking responsibility for the environment – day in, day out. We welcome the ratification of the Paris Agreement on climate change, which aims to limit global warming to less than 2°C above pre-industrial levels.

As a consequence, we aim at achieving a fully CO2-neutral balance in all areas from fleet to production to administration by 2050.

With this in mind, we have defined the following targets:

· To continuously improve our carbon footprint

· To continuously reduce our pollutant emissions

· To continuously reduce our resource consumption

In our 2025 environmental program, two indicators record the progress we are making toward attaining two strategic objectives:

· In this context, we define the decarbonization index (DCI) as a strategic indicator which we use to measure progress. It measures products’ CO₂ emissions along the entire value chain. It is calculated by dividing our CO₂ footprint by the number of vehicles produced. It thus incorporates both direct and indirect CO₂ emissions from the individual production sites (Scope 1 and 2), as well as all other CO₂ emissions occurring throughout the life cycle of the vehicles sold – from the extraction of raw materials through the use phase to the recycling of end-of-life vehicles (Scope 3). The DCI thus makes it possible to pursue milestones in a transparent, holistic way as we make our way toward climate-friendly mobility. The 2025 target is to reduce the CO2 footprint of the vehicle feet by 30 percent across the lifecycle compared to 2015. We are currently defining detailed target values for 2025, in consultation with the Volkswagen Group brands. The outcome should ensure that our target values contribute to the two-degree target set in the Paris Agreement concluded at the UN Climate Conference in December 2015.

Environmental impact reduction production per unit (UEP) was defined as part of our environmental production strategy, and target values were specified for the Group and brands. By 2025, we intend to reduce production-related environmental impacts per vehicle by 45% compared with 2010. UEP includes the consumption of energy and water, emissions of CO₂ and VOCs, as well as the volume of waste. By the end of 2018, we achieved a 33.9 % reduction in environmental impacts. Specific CO2 emissions at all plants are to be cut 50 percent by 2025 compared with 2010.

ii) The most substantial business decision made during the reporting year is the extension and acceleration of our Roadmap E: As a core element of our TOGETHER – Strategy 2025, we are launching the largest electrification drive in the automotive industry. By 2025, we want to become a world leader in e-mobility. The Group is planning to launch almost 70 new electric models in the next ten years – instead of the 50 previously planned. As a result, the projected number of vehicles to be built on the Group’s electric platforms in the next decade will increase from 15 million to 22 million. Expanding e-mobility is an important building block on the road to a CO2-neutral balance. Volkswagen has signed off a comprehensive decarbonization program aimed at achieving a fully CO2-neutral balance in all areas from fleet to production to administration by 2050. Volkswagen is thus fully committed to the Paris climate targets.

Several aspects influenced this business decision: The need to mitigate climate change in a below 2° C scenario, fleet emission regulations in our main markets like China, EU, USA and South America, but as well the opportunities from the growing market for alternative drivetrains like electric mobility.

## **C3.1d**

### **(C3.1d) Provide details of your organization’s use of climate-related scenario analysis.**

|  |  |
| --- | --- |
| **Climate-related scenarios** | **Details** |
| 2DS | How scenarios were identified and adapted: Volkswagen is a stakeholder in the IEA Mobility Model (MoMo) working group, and as such has contributed to the development of the model, and is using the model data and assumptions in various contexts. MoMo uses the various IEA ETP scenarios, including the 2DS as a Below-2-degree pathway. Scenario prognoses on a regional level, which are available via the MoMo model, were matched with existing regional/market-specific Volkswagen data and forecasts regarding production output, energy consumption and vehicle lifecycle data, to develop a Volkswagen-specific model, taking into account the specific regional characteristics of production, sales, and vehicle operation. We used interpolation and pro-rating methods to match different data aggregation levels and temporal resolutions. A sensitivity analysis was conducted to identify decisive factors. Time horizons: We have conducted analyses up to 2050, as this is the maximum timeframe covered by the model at the time of the analysis. We have then focused on the year 2025, which marks the time horizon of our Group Strategy TOGETHER 2025, and also is the target year of several internal KPIs. Areas of organization: Scenario analysis focused on 1. Production: energy consumption of production, prognosed grid energy mix, related GHG emissions; 2. Sales/technology: Prognosed sales development and drivetrain shares of passenger vehicles 3. Impact of products: Prognosed WTW GHG emissions of new cars; 4. Materials procurement: Amount of procured materials, related upstream GHG emissions. Summary of results: Regarding production-related emissions, the analysis showed that a significant decrease of emission intensity per car produced is necessary to be compliant with the UN climate target, especially in the context of increasing sales. Regarding the development of the vehicle sector, the analysis showed that electrification will gain significant importance, but combustion engines retain a considerable market share over the next decade even under a 2-degree-compliant scenario. How results informed our strategy: Regarding production-related emissions, we are currently working on medium to long-term reduction targets that achieve a reduction compliant with the UN climate agreement. In parallel, we invest in the modernization of our production facilities to achieve our Group target to become a role model for the environment. The market and product related findings support and confirm our strategic decision taken with the Group Strategy 2025 to massively invest both in electric mobility (as specified in our Roadmap E) as well as in efficiency improvements of the combustion drivetrain. Example/case study: To be able to achieve the decrease in production-related GHG emissions that resulted as necessary for compliance with the UN climate agreement, Volkswagen decided to convert the currently coal-fired power plants at our Wolfsburg site to natural gas firing, for this we will invest €400 million. The modernization measures and the move away from hard coal will cut annual CO2 emissions by 1.5 million tons. This corresponds to a reduction of close to 60 percent at the Wolfsburg site or, to make the figure more tangible, the combined annual CO2 emissions of 870,000 cars. For the entire Group, this translates into a global CO2 reduction of 15 percent. |

## **C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e**

### **(C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e) Disclose details of your organization’s low-carbon transition plan.**

We aim at achieving a fully CO2-neutral balance in all areas from fleet to production to administration by 2050. Consequently, we have set milestones in all areas to be achieved in the coming years on the road to complete decarbonization by 2050.

The 2025 target is to reduce the CO2 footprint of the vehicle feet by 30 percent across the lifecycle compared to 2015. Volkswagen is therefore electrifying the vehicle portfolio, with investment in this area alone amounting to more than €30 billion by 2023. The share of electric vehicles in the Group feet is to rise to at least 40 percent by 2030. At the same time, CO2 emissions at all plants are to be cut 50 percent by 2025 compared with 2010. The conversion of the power station in Wolfsburg from coal to gas will reduce CO2 emissions by 1.5 million tons annually from 2023 onwards. Audi’s production activities at the Brussels site, for example, are already completely CO2-neutral. The Zwickau plant will not only be the lead factory for the Modular Electric Drive Toolkit (MEB); the ID. built there will be delivered to customers with a CO2-neutral balance.

We are driving this fundamental transition in several ways:

1. Powertrain and fuel strategy

For us, effective environmental protection means complexity and consistency in equal measure. This is why we are focusing on the development of environmentally friendly products by ensuring that our powertrain and fuel strategy is fundamentally sustainable.

Roadmap E, which we adopted in 2017 as the centerpiece of our electrification initiatives will be supported by innovative solutions for modern combustion engines and alternative drive systems. Research into sustainable mobility solutions and digitized business models is the final element in our strategic realignment. We look at the entire life cycle from product development through production, from logistics – including the supply chain – through the use phase, right through to recycling (LifeCycle Thinking). At every stage, we take a holistic approach to analyzing environmentally relevant factors such as energy and CO₂ emissions, material management and recycling concepts, water management, recycling solutions, pollutants and nature conservation, in order to meet our ambitious decarbonization, pollutant reduction and resource conservation targets. We ensure that our progress toward meeting these targets is visible by participating in ratings and rankings.

2. Action plan – products and production

In our 2025 environmental program, two indicators record the progress we are making toward attaining two strategic objectives:1. In this context, we define the decarbonization index (DCI) as a strategic indicator which we use to measure progress. It measures products’ CO₂ emissions along the entire value chain. It is calculated by dividing our CO₂ footprint by the number of vehicles produced. It thus incorporates both direct and indirect CO₂ emissions from the individual production sites (Scope 1 and 2), as well as all other CO₂ emissions occurring throughout the life cycle of the vehicles sold – from the extraction of raw materials through the use phase to the recycling of end¬of¬life vehicles (Scope 3). The DCI thus makes it possible to pursue milestones in a transparent, holistic way as we make our way toward climate friendly mobility. The 2025 target is to reduce the CO2 footprint of the vehicle feet by 30 percent across the lifecycle compared to 2015.We are currently defining detailed target values for 2025, in consultation with the Volkswagen Group brands. The outcome should ensure that our target values contribute to the two-degree target set in the Paris Agreement concluded at the UN Climate Conference in December 2015.2. Environmental impact reduction production per unit (UEP) was defined as part of our environmental production strategy, and target values were specified for the Group and brands. By 2025, we intend to reduce production¬related environmental impacts per vehicle by 45% compared with 2010. UEP includes the consumption of energy and water, emissions of CO₂ and VOCs, as well as the volume of waste. By the end of 2018, we achieved a 33.9 % reduction in environmental impacts. Specific CO2 emissions at all plants are to be cut 50 percent by 2025 compared with 2010.

## **C4. Targets and performance**

## **C4.1**

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

Intensity target

## **C4.1b**

### **(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).**

### **Target reference number**

Int 1

### **Scope**

Scope 1 +2 (market-based)

### **% emissions in Scope**

98.6

### **Targeted % reduction from base year**

25

### **Metric**

Other, please specify (Metric tons CO2 per vehicle produced)

### **Base year**

2010

### **Start year**

2012

### **Normalized base year emissions covered by target (metric tons CO2e)**

1.096

### **Target year**

2018

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

No, but we are reporting another target that is science-based

### **% of target achieved**

100

### **Target status**

Achieved

### **Please explain**

The production related intensity target (expressed as kg CO2 per vehicle produced) for 2018 has already been achieved in 2017. It refers to light duty vehicle production only (hence not 100% of Scope 1+2 covered). A new target was set for 2025.

### **% change anticipated in absolute Scope 1+2 emissions**

9

### **% change anticipated in absolute Scope 3 emissions**

0

### **Target reference number**

Int 2

### **Scope**

Scope 1 +2 (market-based)

### **% emissions in Scope**

98.6

### **Targeted % reduction from base year**

50

### **Metric**

Other, please specify (Tons CO2 per vehicle produced)

### **Base year**

2010

### **Start year**

2019

### **Normalized base year emissions covered by target (metric tons CO2e)**

1.096

### **Target year**

2025

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

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science Based Targets initiative

### **% of target achieved**

68.6

### **Target status**

New

### **Please explain**

The production related intensity target (expressed as kg CO2 per vehicle produced) for 2025 is based on the needed absolute reduction from 2015 to 2025 (-14.5%) needed for a science based target. It refers to light duty vehicle production only (hence not 100% of Scope 1+2 covered).

### **% change anticipated in absolute Scope 1+2 emissions**

-6

### **% change anticipated in absolute Scope 3 emissions**

0

## **C4.2**

### **(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.**

## **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 | 87 | 18541 |
| To be implemented\* | 114 | 44384 |
| Implementation commenced\* | 54 | 20658 |
| Implemented\* | 839 | 146153 |
| Not to be implemented | 201 | 37233 |

## **C4.3b**

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

### **Initiative type**

Energy efficiency: Building fabric

### **Description of initiative**

Other, please specify ((Insultation, heat protection, etc.) Various building fabric measures, incl. insulation, heat protection etc.)

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

3155

### **Scope**

Scope 1

### **Voluntary/Mandatory**

Voluntary

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

456800

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

3346900

### **Payback period**

4 - 10 years

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

This is the sum of 32 individual measures. Also tackles Scope 2 emissions (market- and location-based).

### **Initiative type**

Energy efficiency: Building services

### **Description of initiative**

Other, please specify ((Lighting, HVAC, etc.) Various building services, incl. lighting, HVAC, etc.)

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

47837

### **Scope**

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

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

9060100

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

10129100

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

Sum of 268 measures.

### **Initiative type**

Energy efficiency: Processes

### **Description of initiative**

Other, please specify ((Temperature control, heat losses etc.) Various process efficiency measures for Process optimization.)

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

85892

### **Scope**

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

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

10994900

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

11971200

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

Sum of 496 measures. Also tackles Scope 1 emissions in several cases.

### **Initiative type**

Low-carbon energy installation

### **Description of initiative**

Other, please specify (Several renewable energy types (incl. PV))

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

1545

### **Scope**

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

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

105300

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

125200

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

Sum of 6 measures in the measure system. Other purchase of renewable energy was not accounted for within the measure management system.

### **Initiative type**

Process emissions reductions

### **Description of initiative**

Other, please specify (Various Improvements covering optimization of processes burning natural gas )

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

7724

### **Scope**

Scope 1

### **Voluntary/Mandatory**

Voluntary

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

1234800

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

3508900

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

Sum of 36 measures.

## **C4.3c**

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

|  |  |
| --- | --- |
| **Method** | **Comment** |
| Dedicated budget for low-carbon product R&D | Our Group invested €13.6 billion in research and development in 2018. Much of this was spent on efficiency-enhancing technologies (alternative drivetrains, efficiency increase of combustion vehicles). |
| Compliance with regulatory requirements/standards | Compliance with regulatory requirements and standards is a set prerequisite for the Volkswagen Group. Current law and applicable legal regulations provide the binding framework for our worldwide activities. Introduction of increasingly stringent carbon emission performance requirements for vehicles is rigorously monitored worldwide and drives investment in emission reduction activities and thus catalyses the development of innovative emission reduction technologies. As to EU new-car fleet-average emissions, a further significant reduction to 95 g CO2/km by 2021 has already been agreed at EU commission level and the Volkswagen Group is the first carmaker to have committed to this ambitious goal. In the meantime, other major markets too have adopted caps on new-car CO2 emissions. In China, Volkswagen passenger car models comply with the corporate average fuel consumption limits in force in that market since 2012. And measures are in the pipeline for further ambitious improvements, including improvements to the efficiency of our internal combustion engines and the introduction of alternative drive technologies. In the USA and Canada, a cap of 103 g CO2/km will apply from 2025. |
| Internal incentives/recognition programs | Our ideas management program is another important tool for encouraging employee engagement. This program enables employees to bring their creativity, knowledge and initiative to bear and take responsibility for improving both processes and products. In 2018, over 42,000 ideas had been submitted, while implemented ideas were saving the company approximately €128 million (alone at German sites operated by Volkswagen AG). It also contributes to improving health and safety and helps us reach our targets for reducing energy consumption and CO2 emissions. |
| Employee engagement | In the reporting period, around 1,500 implemented measures in the area of environment and energy were documented in this system. They serve to improve passenger car and light commercial vehicle production processes. These activities are worthwhile not just from an environmental perspective: they also lead to annual savings of over €38 million. |
| Dedicated budget for other emissions reduction activities | Investment for environmental protection at our Volkswagen AG production sites (Germany) was 12,000,000 € in 2018. Operating costs for environmental protection in Germany alone were about € 230 million. We primarily invested in water pollution control, waste management and air pollution control. |
| Financial optimization calculations | One key instrument in the pursuit of our economic goals is the Modular Transverse Matrix, also known by its German abbreviation MQB, which helps make our production operations flexible and efficient. For one thing it enables us to use identical components in different models, reducing the cost of each individual vehicle. In Addition the MQB permits the replacement of individual components in response to revised customer wishes. This enables the Group to react promptly to changes in the marketplace and avoid excess capacities and misallocation of resources. In view of the varied and changing CO2 regulation scenario worldwide, this represents an invaluably added measure of flexibility. |

## **C4.5**

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

Yes

## **C4.5a**

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

### **Level of aggregation**

Company-wide

### **Description of product/Group of products**

Through yearly efficiency improvements on our product portfolio, we enable our customers to reduce their GHG emissions significantly in the use phase of our vehicles. We know from LCA and our CO2 registry tool that CO2 emissions in the use phase of vehicles with combustion engines account for more than 70% of total scope 3 emissions. In Addition to our Roadmap E, provision of efficient consumption technologies is Volkswagen’s most effective lever towards more and more environmentally compatible mobility. Our goal is to reduce CO2 emissions from our EU new-car fleet to 95 g/km in 2020 and expanding the portfolio of alternative powertrain technologies is an integral part of our CO2 emission reduction strategy. A wide range of innovative energy-saving technologies is in place throughout our product portfolio, including for example automatic start/stop, low rolling resistance tyres, recuperation of energy from braking, improved aerodynamics and lightweight construction technologies. In addition, tools like the GearShift Indicator or selectable ECO-modi (e.g. Think Blue Trainer) help drivers to further cut consumption in the use phase of our vehicles. Our eco-efficiency labels, (eg. BlueMotion) are implemented to guide customers towards our most efficient models. The average CO2-emissions (EU-fleet) dropped from 159 to 123 g CO2/km (2008-2018). In the Chinese market, average fuel consumption had been reduced from 170 to 144 g CO2 (2013 to 2018), 171 to 163 g CO2/km (2017: 163 g CO2/km) in North America. We had reached 132 g/km (2016: 131 g/km, 2017: 129 g/km) in Brazil. Examples: - Purely electric vehicles like the e-up! and e-Golf are emission-free, with an average energy consumption of 11.7 kWh/100km (e-up!) and 12.7 kWh/100 km (e-Golf).

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

Low-carbon product

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

Other, please specify (ISO 14040, life cycle assessment)

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

1.71

### **Comment**

In the reporting year, we produced 179,140 vehicles with eco-friendly drives (gas, hybrid, all electric) worldwide. This amounts to 1.71% of our total output, a 12% increase over 2017. In 2019 The Volkswagen Group has set milestones in all areas to be achieved in the coming years on the road to complete decarbonization by 2050. The 2025 target is to reduce the CO2 footprint of the vehicle feet by 30 percent across the lifecycle compared to 2015. Volkswagen is therefore electrifying the vehicle portfolio, with investment in this area alone amounting to more than €30 billion by 2023. The share of electric vehicles in the Group feet is to rise to at least 40 percent by 2030. Volkswagen plans 22 million electric vehicles in ten years. Almost 70 new electric models by 2028 – instead of the 50 previously planned. As a result, the projected number of vehicles to be built on the Group’s electric platforms in the next decade will increase from 15 million to 22 million.

## **C5. Emissions methodology**

## **C5.1**

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

### **Scope 1**

### **Base year start**

January 1 2010

### **Base year end**

December 31 2010

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

4388724

### **Comment**

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

### **Base year start**

### **Base year end**

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

### **Comment**

### **Scope 2 (market-based)**

### **Base year start**

January 1 2010

### **Base year end**

December 31 2010

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

3714312

### **Comment**

## **C5.2**

### **(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.**

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

## **C6. Emissions data**

## **C6.1**

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

### **Reporting year**

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

4068261

### **Start date**

January 1 2018

### **End date**

December 31 2018

### **Comment**

## **C6.2**

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

### **Row 1**

### **​Scope 2, location-based​**

We are reporting a Scope 2, location-based figure

### **Scope 2, market-based**

We are reporting a Scope 2, market-based figure

### **Comment**

## **C6.3**

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

### **Reporting year**

### **Scope 2, location-based**

6370514

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

4291252

### **Start date**

January 1 2018

### **End date**

December 31 2018

### **Comment**

The location-based scope 2 emissions were calculated in accordance with document “VDA-Emissionsfaktoren für Strom, Fernwärme und Kraftstoffe” from German Association of the Automotive Industry (VDA). The market-based scope 2 emissions calculation is based on 2018 emission factors. For purchased electrical energy at the production sites in China, market-based CO2 emission factors were not available. CO2 emission factors published by the government were used instead. In some regions of China (except China east), Mexico, Argentina and Hungary these CO2 emission factors were higher than the factors from the German Association of the Automotive Industry (VDA). In these cases the (higher) marked based factors were used for calculation of location based CO2 emissions for some production sites.

## **C6.4**

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

Yes

## **C6.4a**

### **(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.**

### **Source**

Six Regional Product Centers of Scania

### **Relevance of Scope 1 emissions from this source**

Emissions are not relevant

### **Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

### **Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

### **Explain why this source is excluded**

No data was available for the mentioned sites. These sites’ aggregated number of employees is about 0.14% of the employees of all production sites included in the disclosure.

## **C6.5**

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

### **Purchased goods and services**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

67434157

### **Emissions calculation methodology**

CO2e emissions in Category 1 have been calculated on base of sales-weighted Life Cycle Assessment (LCA) figures for 10,675,268 vehicles sold in 2018 worldwide. Emission factors have been derived on the basis of a multitude of extensive LCA studies of different car models and brands in the group. These have virtually all been certified independently according to ISO 14040/44. On the basis of these studies and in collaboration with suppliers particular emission factors have been derived on a vehicle-mass basis [kg CO2e/kg vehicle-mass] that represent CO2e emissions from purchased goods and services differentiated for various vehicle classes: • Mini • Small • Compact • Midsize • SUV • Vans • Fullsize • Sports cars • Light-duty commercial vehicles The corresponding activity data represent vehicle-class specific data on • mean vehicle weights and • sales figures from primary data sources

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

100

### **Explanation**

### **Capital goods**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

14212385

### **Emissions calculation methodology**

Emissions associated with capital goods have been calculated based on economic input-output analysis, using investments data as reported in the Volkswagen AG annual report 2018 These figures include the additions to Volkswagen AG property, plant and equipment. The following types of capital goods have been differentiated in the estimation: • Technical equipment and machinery for vehicle production • Technical equipment and machinery for subassembly and components production • Buildings

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

80

### **Explanation**

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

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

1402775

### **Emissions calculation methodology**

Group-wide energy consumption is measured and reported annually based on information tracked in our internal environmental information system. On the basis of this data source we differentiate Cat.3 emissions for • Electricity and compressed air • Space heating (domestic generation and district heating) • Technical heating (domestic generation and district heating) • Gaseous fuels for manufacturing processes The corresponding Scope 3 emission factors (representing activities in Germany) have been referenced from representative generic databases.

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

100

### **Explanation**

### **Upstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

4817890

### **Emissions calculation methodology**

This figure represents CO2e WTW emissions resulting from both inbound and outbound transportation as well as transportation processes between our facilities worldwide. Transport data is derived from internal transport IT-Systems for all modes of transportation (road, rail, sea, barge and air). The calculation scheme was developed before the first release of GLEC Framework and was adapted in 2017 to meet GLEC requirements. Further adaptions may be needed to meet all GLEC conformance criteria, which are not yet finalized by GLEC. Furthermore the data collection scheme for transportation of cars and the emissions factors for land transportation have been revised in 2018. Emissions data for buildings / transshipment centers is not available. Primary fuel consumption data is available for a significant share of sea transportation. All other transport emissions are calculated with generic emissions factors parametrized by mode of transport, vehicle size, utilization, distance and payload. In addition to that transport service provider specific information are used as parameters when deriving emissions factors. This Cat. 4 carbon accounting includes all transportation in Europe, all intercontinental transportation and the worldwide distribution of vehicles to national sales companies and vendors (in China only to depots). Transportation for MAN and Scania is only included when operated by Volkswagen Group Logistics. Processes not yet included are transportation of local sourced materials for non-EU factories, transportation of cars between depots and vendors in China, emissions by buildings / transshipment centers and few specialized transport processes in Europe. The carbon accounting scheme is planned to be rolled-out for this regions and processes in the next years. In addition to that MAN and Scania are not yet included in Volkswagen Groups Carbon Accounting. In addition to that trains powered by regenerative electricity can not yet be identified in transport data and are calculated as conventionally powered trains.

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

100

### **Explanation**

The carbon accounting of transportation (Cat. 4) in 2018 results in 10.1 % higher emissions of CO2e compared to 2017. Main drivers are the revision of our data collection scheme for car transportation and new generic emission factors for land transportation which are on average ~2% higher than before.

### **Waste generated in operations**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

2265212

### **Emissions calculation methodology**

Group-wide waste generation is measured and reported annually based on our internal environmental information system. On the basis of this primary data source we distinguish activity data for waste treatment : • Non-hazardous waste for disposal • Non-hazardous waste for recycling • Metallic waste • Hazardous waste for disposal • Hazardous waste for recycling • Waste water The corresponding Scope 3 emission factors (using factors for Germany) have been referenced from representative generic databases.

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

100

### **Explanation**

### **Business travel**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

708180

### **Emissions calculation methodology**

The Volkswagen Group does not yet have a centralized system that covers business travel activities of all different brands and affiliates. Therefore, a generic estimation was made based on external reference data. This figure represents the mean CO2e-emission of one Volkswagen AG employee per year. The corresponding activity data represents the number of about 708,180 employees worldwide

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

50

### **Explanation**

### **Employee commuting**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

1009481

### **Emissions calculation methodology**

Employee commuting in the Volkswagen group affects about 708,000 people. Activity data have been collected in a specific survey representing commuting to/from our largest facility in Wolfsburg/Germany. These data reflect the commuting behavior of about 54,000 employees from 13 residential areas with daily travelling distances up to 230 km. We assumed 220 working days per year, and worked with the following split between the transport modes: • Car 75% • Train (long distance) 10% • Public transportation (overland) 5% • Public transportation (urban) 10% The corresponding emission factors for these four transport modes were identified on the basis of external generic data sources. Global commuting-related Scope 3 emissions were calculated as an extrapolation of the Wolfsburg results, based on the number of employees.

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

50

### **Explanation**

### **Upstream leased assets**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

We assume that the vast majority of GHG emissions that are generated by use of leased facilities and equipment are already reported in the Scopes 1 and 2. This also applies for leased assets in financial services Due to this we expect the remaining share of emissions from this category less than 1% of the total scope 3 emissions, i.e. being not relevant for our scope 3 GWP inventory.

### **Downstream transportation and distribution**

### **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>

### **Explanation**

The figure reported in Category 4 “Upstream transportation and distribution” generally covers transportation of products from our facilities to contracted retailers in Europe and also to transfer points to importers/retailers worldwide, i.e. outbound logistic processes. Thus, we solely understand "Downstream transportation and distribution" as the transport of our products from an importer/retailer to local dealers in any region outside Europe. As there is no specific information about details of these logistic processes, (means of transportation, payload, distance),at this point in time it is not possible to reliably quantify this category. However, it can be assumed that there is no significant impact on our scope 3 GHG inventory from this category.

### **Processing of sold products**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

13000

### **Emissions calculation methodology**

For Volkswagen AG’s products there is virtually no further processing. This figure thus reflects only GHG emissions resulting from final assembly of vehicles that are provided to our partners worldwide as semi-knocked down/completely knocked down (SKD/CKD) units. Activity data reflect the total number of vehicles that have been supplied via SKD/CKD. The corresponding emission factor represents the indirect CO2e emissions from final processing/assembly of the cars. This value has been derived as an average from our extensive LCA-studies.

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

80

### **Explanation**

### **Use of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

332364361

### **Emissions calculation methodology**

The number reflects the impact from the complete use phase (well-to-wheel) of 10,675,268 cars sold in 2018 over lifetime. The emission factor represents the weighted average CO2 value of our fleets in the main markets: • EU28 (plus Switzerland + Norway) • China (plus Japan + South Korea) • USA • Brazil The single figures specifically account for different driving cycles, depending on the region. Considering the individual sales numbers in these regions, the weighted mean value is representative for 83% of our worldwide sales – however, it is assumed to be representative for 100% of our cars. Subsequently this figure is completed by the corresponding well-to-tank emissions that have been derived for each region individually. Activity data represent the number of worldwide sales in combination with an assumed average kilometrage of 200,000 km over life time.

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

100

### **Explanation**

### **End of life treatment of sold products**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

1145858

### **Emissions calculation methodology**

In consistence with calculations for categories 1 and 11, this figure represents CO2e emissions from End of life-Treatment of 10,675,268 vehicles (number of cars sold in 2018). Different vehicle classes have been differentiated (for details see ’Methodology’ description for Category 1). The corresponding emission factors have been extracted from our extensive life cycle assessments database, representing specific mean values of CO2e emissions from End of Life-treatment in the particular vehicle classes.

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

100

### **Explanation**

### **Downstream leased assets**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

1048978

### **Emissions calculation methodology**

Activity data are based on primary information of group-wide financial investments taken from the annual report 2018. The figure comprises payments from non-cancelable leases and rental agreements, particularly the lease payments in 2018. Emissions for this category have been estimated Economic Input- Output assessment, and represent less than 1% of our overall scope 3 emissions (hence “not relevant”).

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

80

### **Explanation**

### **Franchises**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

1550000

### **Emissions calculation methodology**

For the calculation of this figure we account for Scope 1 & 2 CO2e emissions that are generated at our sales and distribution partners world-wide. Activity data have been evaluated based on the number of partners within the world-wide distribution network of the brands Volkswagen and Volkswagen commercial vehicles. Based on the share of global sales figures with this approach it is assumed that we cover at least 50% of the sales partners for the whole group world-wide. We assume every facility with a number of personnel of 30. Furthermore we distinguish facilities that comprise either (1) sales and service or (2) service only and subsequently different values for energy demand for • personnel in sales • personnel in service The CO2e emission factors for this calculation have been identified in cooperation with our strategic partner PE International.

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

50

### **Explanation**

### **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>

### **Explanation**

“Volkswagen Financial Services" as well as the “Volkswagen Bank” both operate in the financial sector that generally accounts for GHG emissions in this Scope 3 category. However, the core business of these divisions is in financing projects of the brands within the group. Furthermore, relevant turn overs and revenues are generated through sales financing, leasing and insurance of vehicles of our own property. Thus, we expect the relevance of this category to be marginal, as these emissions are captured in Scope 1 and 2, and other Scope 3 categories.

### **Other (upstream)**

### **Evaluation status**

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

### **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>

### **Explanation**

## **C6.7**

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

No

## **C6.10**

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

### **Intensity figure**

0.0000354

### **Metric numerator (Gross global combined Scope 1 and 2 emissions)**

8359513

### **Metric denominator**

unit total revenue

### **Metric denominator: Unit total**

235849000000

### **Scope 2 figure used**

Market-based

### **% change from previous year**

12

### **Direction of change**

Decreased

### **Reason for change**

The sales revenue increased by 2.7 % compared to 2017. Also the CO2 emissions have been decreased by 9.2% through emission reduction activities and the purchase of more renewable energy. One example for reduction activities: Painting vehicle bodies is the most energy-intensive process. Most energy-related analyses thus focus on this area. In the reporting period, 165,000 MWh of energy and 34,000 t of CO₂ was saved at Group sites through optimization measures in the paint shops. (please note that the revenue figure and resulting intensity provided last year referred to revenues from the automotive business only. This year the figure refers to total Group revenue. For calculating the "% change from previous year" the intensity for 2017 has also been recalculated per total Group revenue, to ensure comparability).

### **Intensity figure**

0.756

### **Metric numerator (Gross global combined Scope 1 and 2 emissions)**

8359513

### **Metric denominator**

vehicle produced

### **Metric denominator: Unit total**

11018000

### **Scope 2 figure used**

Market-based

### **% change from previous year**

10

### **Direction of change**

Decreased

### **Reason for change**

The production volume increased by 1,1 % compared to 2017 (production (units) across all segments). Also the CO2 emissions have been decreased by 9.2% through emission reduction activities and the purchase of more renewable energy. One example for reduction activities: Painting vehicle bodies is the most energy-intensive process. Most energy-related analyses thus focus on this area. In the reporting period, 165,000 MWh of energy and 34,000 t of CO₂ was saved at Group sites through optimization measures in the paint shops.

## **C7. Emissions breakdowns**

## **C7.1**

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

Yes

## **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 | 3914832 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| CH4 | 4191 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| N2O | 438 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| HFCs | 128576 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| SF6 | 20224 | 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)** |
| Argentina | 32981 |
| Belgium | 92 |
| Bosnia and Herzegovina | 140 |
| Brazil | 63324 |
| China | 551666 |
| Denmark | 3557 |
| France | 5733 |
| Finland | 678 |
| Germany | 2771868 |
| India | 8830 |
| Italy | 14493 |
| Mexico | 100695 |
| Netherlands | 6663 |
| Poland | 68505 |
| Portugal | 20528 |
| Russian Federation | 28779 |
| Austria | 7583 |
| South Africa | 17105 |
| Spain | 156529 |
| Sweden | 20309 |
| Switzerland | 12 |
| Thailand | 32 |
| Turkey | 11191 |
| United Kingdom of Great Britain and Northern Ireland | 18093 |
| United States of America | 14678 |
| Slovakia | 64438 |
| Czechia | 50739 |
| Hungary | 29018 |

## **C7.3**

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

By activity

## **C7.3c**

### **(C7.3c) Break down your total gross global Scope 1 emissions by business activity.**

|  |  |
| --- | --- |
| **Activity** | **Scope 1 emissions (metric tons CO2e)** |
| Production of passenger cars and light commercial vehicles | 3893579 |
| Production of Heavy commercial vehicles, motorcycles and non-vehicle products | 174682 |

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

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Gross Scope 1 emissions, metric tons CO2e** | **Net Scope 1 emissions , metric tons CO2e** | **Comment** |
| Cement production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Chemicals production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Coal production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Electric utility generation 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 (downstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Steel production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Transport OEM activities | 4068261 | <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 in market-based approach (MWh)** |
| Argentina | 57595 | 59526 | 144937 | 1428 |
| Austria | 12697 | 12697 | 49313 | 41352 |
| Belgium | 16329 | 0 | 77965 | 77965 |
| Bosnia and Herzegovina | 5096 | 1249 | 9609 | 0 |
| Brazil | 131708 | 0 | 427428 | 464771 |
| China | 3011993 | 2648860 | 4450899 | 337238 |
| Czechia | 479663 | 336934 | 993991 | 440914 |
| Denmark | 6569 | 6569 | 22014 | 0 |
| France | 438 | 227 | 5010 | 8923 |
| Germany | 1125440 | 469281 | 2584065 | 1449109 |
| Hungary | 179662 | 234278 | 516008 | 125794 |
| India | 64456 | 48145 | 57440 | 676 |
| Italy | 9182 | 0 | 28579 | 28579 |
| Mexico | 315350 | 118162 | 537124 | 334785 |
| Netherlands | 13998 | 0 | 27911 | 27911 |
| Poland | 357533 | 171501 | 409640 | 234633 |
| Portugal | 40880 | 22133 | 125238 | 62442 |
| Russian Federation | 47637 | 19163 | 93999 | 17933 |
| Slovakia | 132288 | 0 | 349347 | 349347 |
| South Africa | 102293 | 87773 | 87145 | 0 |
| Spain | 157154 | 0 | 537314 | 537314 |
| Sweden | 15259 | 1590 | 432981 | 347992 |
| Switzerland | 1387 | 1387 | 16817 | 0 |
| Thailand | 666 | 666 | 2260 | 0 |
| Turkey | 11167 | 11167 | 18401 | 0 |
| United Kingdom of Great Britain and Northern Ireland | 15287 | 0 | 36743 | 36743 |
| United States of America | 58167 | 39416 | 110076 | 11630 |
| Finland | 622 | 527 | 3292 | 0 |

## **C7.6**

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

By activity

## **C7.6c**

### **(C7.6c) Break down your total gross global Scope 2 emissions by business activity.**

|  |  |  |
| --- | --- | --- |
| **Activity** | **Scope 2, location-based emissions (metric tons CO2e)** | **Scope 2, market-based emissions (metric tons CO2e)** |
| Production of passenger cars and light commercial vehicles | 6056012 | 4025154 |
| Production of Heavy commercial vehicles, motorcycles and non-vehicle products | 314502 | 266099 |

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

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Scope 2, location-based, metric tons CO2e** | **Scope 2, market-based (if applicable), metric tons CO2e** | **Comment** |
| Cement production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Chemicals production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Coal production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Metals and mining production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (upstream) | <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 | 6370514 | 4291252 |  |
| Transport services activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C-TO7.8**

### **(C-TO7.8) Provide primary intensity metrics that are appropriate to your indirect emissions in Scope 3 Category 11: Use of sold products from transport.**

### **Activity**

Light Duty Vehicles (LDV)

### **Emissions intensity figure**

0.000082

### **Metric numerator (Scope 3 emissions: use of sold products) in Metric tons CO2e**

332364361

### **Metric denominator**

p.km

### **Metric denominator: Unit total**

407795237600

### **% change from previous year**

22

### **Vehicle unit sales in reporting year**

10675268

### **Vehicle lifetime in years**

15

### **Annual distance in km or miles (unit specified by column 4)**

13333

### **Load factor**

1.91

### **Please explain the changes, and relevant standards/methodologies used**

Scope 3 cat. 11 CO2 emissions were distributed to the markets EU, USA, Brazil and China (which represent 83% of all Group LDV use phase emissions) based on their respective shares on overall vehicle sales. In the same manner, vehicle sales in the four markets were extrapolated based on the overall sum of vehicles sold. The calculated vehicle sales per market are multiplied with a lifetime mileage of 200,000km and the load factor to calculate p.km per market. The load factor was derived from the ETP 2017 with model data for 2015 as a weighted average of the four included markets. The p.km per market are summed up for the total Group LDV p.km in 2018. Finally, the scope 3 cat. 11 CO2 emissions are divided by the Group p.km sum. In the columns to the left, we have entered the lifetime kilometrage of 200,000 km as an annual km of 13,333 km over 15 years. The 22% increase of CO2 intensity per p.km in comparison to 2017 is due to the increased lifetime kilometrage from 150,000 km assumed in 2017 to 200,000 km assumed starting 2018. We constantly work to further reduce fleet emissions.

## **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?**

Decreased

## **C7.9a**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Change in emissions (metric tons CO2e)** | **Direction of change** | **Emissions value (percentage)** | **Please explain calculation** |
| Change in renewable energy consumption | 311399 | Decreased | 3.39 | The Volkswagen Group reduced its CO2 emissions by 311,399 t or about 3.39 % in absolute terms compared to 2017 by increasing the renewable energy consumption. Calculation: - 311,399 tCO2e (2017-2018) / 9,185,746 tCO2 (2017) = - 3.39% |
| Other emissions reduction activities | 181027 | Decreased | 1.97 | The Volkswagen Group reduced its CO2 emissions by 181,027 t or about 1.97 % in absolute terms compared to 2017 (volume adjusted). Resource-optimized manufacturing processes and methods have had a positive impact on CO2 emissions per vehicle produced. This includes, as an example for emission reduction activities, our effort to further reduce energy consumption of building services, like lighting, HVAC, compressed air. The calculation was basically done by estimating the CO2 emission for the year 2018 which would have been emitted by producing the vehicle output of 2018 with the "CO2 efficiency of the production from 2017". The difference between the "CO2 estimation for 2018" and the "real CO2 emissions of 2018" constitutes the CO2 reduction (volume adjusted). This CO2 reduction (volume adjusted) is decreased by the CO2 reduction by the change in renewable energy consumption, which is mentioned separately. Calculation: - 181,027 tCO2e (2017-2018) / 9,185,746 tCO2 (2017) = - 1.97% |
| Divestment |  | <Not Applicable> |  |  |
| Acquisitions |  | <Not Applicable> |  |  |
| Mergers |  | <Not Applicable> |  |  |
| Change in output | 266293 | Increased | 2.9 | The Production volume increase had in the existing plants a small effect of additional 63,575 t CO2. There are also three new plants with 202,718 t CO2, producing the increased production volume. The sum is: 266,293 (2017-2018) / 9,185,746 tCO2 (2017) = + 2.90% |
| Change in methodology | 600102 | Decreased | 6.53 | Approximately 70% of the improvement in CO₂ emissions for cars and light commercial vehicles is attributable to an improvement in government CO₂ factors in electricity sourcing in China. |
| 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 undertakes this energy-related activity** |
| 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 | No |
| Consumption of purchased or acquired cooling | No |
| Generation of electricity, heat, steam, or cooling | Yes |

## **C8.2a**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Heating value** | **MWh from renewable sources** | **MWh from non-renewable sources** | **Total MWh** |
| Consumption of fuel (excluding feedstock) | LHV (lower heating value) | 105154 | 17285513 | 17390667 |
| Consumption of purchased or acquired electricity | <Not Applicable> | 4567811 | 4997852 | 9565663 |
| Consumption of purchased or acquired heat | <Not Applicable> | 369667 | 2220216 | 2589883 |
| Consumption of purchased or acquired steam | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired cooling | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of self-generated non-fuel renewable energy | <Not Applicable> | 165836 | <Not Applicable> | 165495 |
| Total energy consumption | <Not Applicable> | 5102972 | 24608736 | 29711708 |

## **C8.2b**

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

|  |  |
| --- | --- |
|  | **Indicate whether your organization undertakes this fuel application** |
| Consumption of fuel for the generation of electricity | No |
| Consumption of fuel for the generation of heat | Yes |
| Consumption of fuel for the generation of steam | No |
| Consumption of fuel for the generation of cooling | No |
| 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)**

Natural Gas

### **Heating value**

LHV (lower heating value)

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

9496741

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

<Not Applicable>

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

7814886

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

<Not Applicable>

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

<Not Applicable>

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

1681856

### **Comment**

### **Fuels (excluding feedstocks)**

Biogas

### **Heating value**

LHV (lower heating value)

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

105154

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

<Not Applicable>

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

55858

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

<Not Applicable>

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

<Not Applicable>

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

49296

### **Comment**

### **Fuels (excluding feedstocks)**

Fuel Oil Number 1

### **Heating value**

LHV (lower heating value)

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

45672

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

<Not Applicable>

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

45672

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

<Not Applicable>

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

<Not Applicable>

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

0

### **Comment**

### **Fuels (excluding feedstocks)**

Propane Gas

### **Heating value**

LHV (lower heating value)

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

102294

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

<Not Applicable>

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

102294

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

<Not Applicable>

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

<Not Applicable>

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

0

### **Comment**

### **Fuels (excluding feedstocks)**

Coal

### **Heating value**

LHV (lower heating value)

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

7044660

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

<Not Applicable>

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

0

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

<Not Applicable>

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

<Not Applicable>

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

7044660

### **Comment**

### **Fuels (excluding feedstocks)**

Diesel

### **Heating value**

LHV (lower heating value)

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

410208

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

<Not Applicable>

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

410208

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

<Not Applicable>

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

<Not Applicable>

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

0

### **Comment**

### **Fuels (excluding feedstocks)**

Petrol

### **Heating value**

LHV (lower heating value)

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

185937

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

<Not Applicable>

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

185937

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

<Not Applicable>

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

<Not Applicable>

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

0

### **Comment**

## **C8.2d**

### **(C8.2d) List the average emission factors of the fuels reported in C8.2c.**

### **Biogas**

### **Emission factor**

0

### **Unit**

metric tons CO2e per MWh

### **Emission factor source**

VDA Emissionsfaktoren (German Association of the Automotive Industry ), 2019

### **Comment**

### **Coal**

### **Emission factor**

0.342

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt) Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode

### **Comment**

### **Diesel**

### **Emission factor**

0.2664

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt) Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode

### **Comment**

### **Fuel Oil Number 1**

### **Emission factor**

0.2664

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt) Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode

### **Comment**

### **Natural Gas**

### **Emission factor**

0.2016

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt) Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode

### **Comment**

### **Petrol**

### **Emission factor**

0.2592

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt) Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode

### **Comment**

### **Propane Gas**

### **Emission factor**

0.234

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt) Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode

### **Comment**

## **C8.2e**

### **(C8.2e) 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 | 3378005 | 3078046 | 166723 | 165495 |
| Heat | 5026529 | 4182207 | 342 | 342 |
| Steam | 0 | 0 | 0 | 0 |
| Cooling | 0 | 0 | 0 | 0 |

## **C8.2f**

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

### **Basis for applying a low-carbon emission factor**

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

### **Low-carbon technology type**

Solar PV

Hydropower

Other low-carbon technology, please specify (Solar Thermal)

### **Region of consumption of low-carbon electricity, heat, steam or cooling**

Other, please specify (Europe, Africa, Asia Pacific)

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

165836

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

### **Basis for applying a low-carbon emission factor**

Energy attribute certificates, Guarantees of Origin

### **Low-carbon technology type**

Solar PV

Wind

Hydropower

Biomass (including biogas)

### **Region of consumption of low-carbon electricity, heat, steam or cooling**

Europe

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

3400027

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

### **Basis for applying a low-carbon emission factor**

Power Purchase Agreement (PPA) with energy attribute certificates

### **Low-carbon technology type**

Solar PV

Wind

Hydropower

Biomass (including biogas)

### **Region of consumption of low-carbon electricity, heat, steam or cooling**

North America

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

346415

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

### **Basis for applying a low-carbon emission factor**

Contract with suppliers or utilities (e.g. green tariff), not supported by energy attribute certificates

### **Low-carbon technology type**

Solar PV

Wind

Hydropower

Biomass (including biogas)

### **Region of consumption of low-carbon electricity, heat, steam or cooling**

Other, please specify (Latin America, Asia Pacific)

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

1102415

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

### **Basis for applying a low-carbon emission factor**

Contract with suppliers or utilities ( e.g. green tariff), supported by energy attribute certificates

### **Low-carbon technology type**

Biomass (including biogas)

### **Region of consumption of low-carbon electricity, heat, steam or cooling**

Europe

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

105154

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

### **Basis for applying a low-carbon emission factor**

Grid mix of renewable electricity

### **Low-carbon technology type**

Solar PV

Wind

Hydropower

Biomass (including biogas)

### **Region of consumption of low-carbon electricity, heat, steam or cooling**

Other, please specify (Latin America, Asia Pacific)

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

88620

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

## **C-TO8.4**

### **(C-TO8.4) Provide any efficiency metrics that are appropriate for your organization’s transport products and/or services.**

### **Activity**

Light Duty Vehicles (LDV)

### **Metric figure**

0.78

### **Metric numerator**

tCO2e

### **Metric denominator**

Production: Vehicle

### **Metric numerator: Unit total**

8359513

### **Metric denominator: Unit total**

10787245

### **% change from previous year**

-5.3

### **Please explain**

Intensity has decreased significantly. Reasons are purchase of more renewable energy, emissions reduction activities and higher production output

### **Activity**

Heavy Duty Vehicles (HDV)

### **Metric figure**

1.84

### **Metric numerator**

tCO2

### **Metric denominator**

Production: Vehicle

### **Metric numerator: Unit total**

440781

### **Metric denominator: Unit total**

239419

### **% change from previous year**

-17.9

### **Please explain**

Intensity has decreased significantly. Reasons are purchase of more renewable energy, emissions reduction activities and higher production output

## **C9. Additional metrics**

## **C9.1**

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

## **C-TO9.3/C-TS9.3**

### **(C-TO9.3/C-TS9.3) Provide tracking metrics for the implementation of low-carbon transport technology over the reporting year.**

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

*LDV - worldwide*

### **Technology**

Battery electric vehicle (BEV)

### **Metric figure**

33429

### **Metric unit**

Units

### **Explanation**

Amount of Battery-Electric vehicles worldwide across all brands. Volkswagen is therefore electrifying the portfolio, with investment in this area alone amounting to more than €30 billion by 2023. The share of electric vehicles in the Group feet is to rise to at least 40 percent by 2030.

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

*LDV - worldwide*

### **Technology**

Plug-in hybrid vehicle (PHEV)

*E85-Veh. in Brazil*

### **Metric figure**

46703

### **Metric unit**

Units

### **Explanation**

Amount of Plugin Hybrid vehicles worldwide across all brands (Drive combining two different types of engine and energy storage systems (usually an internal combustion engine and an electric motor). Plug-in hybrid electric vehicles (PHEVs) have a larger battery with a correspondingly higher capacity that can be charged via the combust ion engine, the brake system, or an electrical outlet . This increases the range of the vehicle.

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

*LDV - worldwide*

### **Technology**

Vehicle using bio-fuel

### **Metric figure**

346025

### **Metric unit**

Units

### **Explanation**

Amount of flexfuel vehicles/engines that can process very high contents of Bio-Ethanol (E85): 100 % in Brazil

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

*LDV - worldwide*

### **Technology**

Vehicle using LPG/CNG

### **Metric figure**

43014

### **Metric unit**

Units

### **Explanation**

Amount of CNG vehicles worldwide across all brands. Burning this compressed natural gas releases approximately 25% less CO2 than petrol because of its low carbon and high energy content.

## **C-TO9.6/C-TS9.6**

### **(C-TO9.6/C-TS9.6) What is your investment in research and development (R&D), equipment, products and services and which part of it would you consider a direct investment in the low-carbon transition?**

### **Activity**

Light Duty Vehicles (LDV)

### **Investment start date**

December 31 2018

### **Investment end date**

December 31 2023

### **Investment area**

R&D

### **Technology area**

Electrification

### **Investment maturity**

Large scale commercial deployment

### **Investment figure**

30000000000

### **Low-carbon investment percentage**

61-80%

### **Please explain**

The 2025 target is to reduce the CO2 footprint of the vehicle fleet by 30 percent across the lifecycle compared to 2015. The share of electric vehicles in the Group fleet is to rise to at least 40 percent by 2030. Volkswagen is therefore electrifying the vehicle portfolio, with investment in this area alone amounting to more than €30 billion by 2023. In total, the Group will invest €44 billion for e-mobility, autonomous driving, new mobility services and the digitalization of vehicles and plants.

## **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 and/or Scope 2 emissions and attach the relevant statements.**

### **Scope**

Scope 1

### **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**

[VW AG\_CDP Verification Template\_18.04.2018\_final.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/lj_05aKmO0OhPKhQN7QymA/VWAGCDPVerificationTemplate18.04.2018final.pdf)

### **Page/ section reference**

All pages: The data has been verified ( ISEA 3000 revised) by the following organization: PriceWaterhouseCoopers AG (PWC) -

### **Relevant standard**

ASAE3000

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

100

### **Scope**

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**

[VW AG\_CDP Verification Template\_18.04.2018\_final.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/lj_05aKmO0OhPKhQN7QymA/VWAGCDPVerificationTemplate18.04.2018final.pdf)

### **Page/ section reference**

All pages: The data has been verified (ISEA 3000) revised by the following organization: PriceWaterhouseCoopers AG (PWC)

### **Relevant standard**

ASAE3000

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

100

## **C10.1b**

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

### **Scope**

Scope 3- at least one applicable category

### **Verification or assurance cycle in place**

Annual process

### **Status in the current reporting year**

Complete

### **Attach the statement**

[VW AG\_CDP Verification Template\_18.04.2018\_final.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/lj_05aKmO0OhPKhQN7QymA/VWAGCDPVerificationTemplate18.04.2018final.pdf)

### **Page/section reference**

All pages: The data has been verified ( ISEA 3000 revised) by the following organization: PriceWaterhouseCoopers AG (PWC)

### **Relevant standard**

ISAE3000

## **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** |
| C8. Energy | Other, please specify (Energy consumption data) | ISAE3000 | The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC), as part of the assurance of our Non-financial Report 2018, as declared on p.104-105 of said report |
| C6. Emissions data | Year on year change in emissions (Scope 1) | ISAE3000 | The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC), as part of the assurance of our Non-financial Report 2018, as declared on p.104-105 of said report |
| C6. Emissions data | Year on year change in emissions (Scope 2) | ISAE3000 | The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC), as part of the assurance of our Non-financial Report 2018, as declared on p.104-105 of said report |
| C5. Emissions performance | Year on year emissions intensity figure | ISAE3000 | The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC), as part of the assurance of our Non-financial Report 2018, as declared on p.104-105 of said report |

## **C11. Carbon pricing**

## **C11.1**

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

Yes

## **C11.1a**

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

EU ETS

## **C11.1b**

### **(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.**

### **EU ETS**

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

90

### **Period start date**

January 1 2018

### **Period end date**

December 31 2018

### **Allowances allocated**

1085244

### **Allowances purchased**

2577862

### **Verified emissions in metric tons CO2e**

3663106

### **Details of ownership**

Facilities we own and operate

### **Comment**

## **C11.1d**

### **(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?**

To ensure compliance with the European Union ETS Volkswagen tries to reduce its need for emission certificates. Besides efficiency measures, lowering the emission intensity of our energy supply plays a major role in our efforts to cut GHG emissions. A large part of the energy demand of Volkswagen AG at our German locations is covered by own generation facilities, operated by our subsidiary VW Kraftwerk GmbH. Since 2011, VW Kraftwerk GmbH has been investing in the ongoing development of renewables and the construction of highly efficient combined heat and power (CHP) plants driven by natural gas.

Example: In the period to 2016, the company invested around €26 million in renewables such as wind farms and photovoltaic power plants. As part of our fuel conversion strategy, VW Kraftwerk GmbH also invested some €15 million in a CHP plant in Braunschweig and some €65 million in a gas and steam turbine (combined cycle) plant in Kassel. At our Wolfsburg site alone, we will invest €400 million in the conversion of the existing power plants to natural gas firing. The modernization measures and the move away from hard coal will cut annual CO2 emissions by 1.5 million tons. This corresponds to a reduction of close to 60 percent at the Wolfsburg site or, to make the figure more tangible, the combined annual CO2 emissions of 870,000 cars.

Responsibility for energy- efficient production within our production plants lies with the Energy Management Production team. This team develops energy efficiency standards for the whole Group, which require for example that plants must only purchase energy-efficient machine tools or production equipment. Also, for the past ten years the Corporate Environment Working Group has been promoting worldwide best practice sharing.

Purchasing/procurement strategy:

A second major part of Volkswagen’s strategy to comply with the schemes is a uniform Group-wide steering (mechanism) for the distribution of certificates to the Group companies. Certificates for the third trading period are secured in advance (“pooling” of certificates). This allows a decoupling of market and price fluctuations. Thereby Volkswagen assures in the long term that the Group will be compliant in the field of emission trading. All these efforts have their part to play in protecting the climate.

## **C11.2**

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

Yes

## **C11.2a**

### **(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.**

### **Credit origination or credit purchase**

Credit purchase

### **Project type**

Wind

### **Project identification**

100.5 MW Wind Power Project in Madhya Pradesh, India, https://www.goldstandard.org/projects/1005-mw-wind-project-india-orange-renewable

### **Verified to which standard**

Gold Standard

### **Number of credits (metric tonnes CO2e)**

4500

### **Number of credits (metric tonnes CO2e): Risk adjusted volume**

4500

### **Credits cancelled**

Yes

### **Purpose, e.g. compliance**

Voluntary Offsetting

## **C11.3**

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

Yes

## **C11.3a**

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

### **Objective for implementing an internal carbon price**

Navigate GHG regulations

### **GHG Scope**

Scope 3

### **Application**

Product Line; Research and Development (Applies to LDV sold witin the EU)

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

475

### **Variance of price(s) used**

This is a fixed price, determined by penalties for exceeding fleet emission regulations in the applicable market. In case of future changes to this regulation, or an extension of its scope, we will adjust the setting of the price accordingly.

### **Type of internal carbon price**

Implicit price

### **Impact & implication**

EU fleet regulation from 2020/2021 onwards (95 g CO2 / km for the whole fleet) exceeding the target by 1 g CO2 / km costs 95 € / vehicle. Use: This serves as a price tag for our internal CO2 management. Apart from that price tag we spare no effort to comply with the worldwide fleet emission limits. The price is used on a per vehicle basis, and serves to identify cost effective approaches to further reduce vehicle consumption. In order to arrive at the requested price per t CO2, we assumed a kilometrage of 200000 per vehicle. Impact: Target achievement is consequently pursued via continuous development and provision of more and more fuel efficient and CO2 emission reduced vehicles and by strongly pursuing our decarbonization Program: The Volkswagen Group is forging ahead with the fundamental change of system in individual mobility and systematically aligning with electric drives. The Group is planning to launch almost 70 new electric models in the next ten years – instead of the 50 previously planned. As a result, the projected number of vehicles to be built on the Group’s electric platforms in the next decade will increase from 15 million to 22 million. Expanding e-mobility is an important building block on the road to a CO2-neutral balance. Volkswagen has signed of a comprehensive decarbonization program aimed at achieving a fully CO2-neutral balance in all areas from feet to production to administration by 2050. Volkswagen is thus fully committed to the Paris climate targets. Based on most recent decisions within our decarbonization program, the company assesses the introduction of carbon pricing for investments in manufacturing units.

## **C12. Engagement**

## **C12.1**

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

Yes, our suppliers

Yes, our customers

## **C12.1a**

### **(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**

0.2

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

89

### **% Scope 3 emissions as reported in C6.5**

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

In 2018, we increased the number of suppliers who we survey as part of the CDP Supply Chain Program regarding responsibility for our climate and water to more than 200. This equates to 89% (2017: 43%) of our production- related procurement spending (excluding services, VW Brazil, Scania and our joint ventures in China).Using this priorization, we aim to cover a significant part of our material emissions, even though the share of suppliers by number is comparably low. This is due to the fact that we that we have more than 40 000 tier 1 suppliers worldwide, of which many have a small share of procurement spend, and/or are not production material suppliers. We use supplier’s data in different ways: We use the data to analyse anomalities and to get in direct dialogue with the suppliers. Moreover, we use the data for comparison with our own generic data and to make our LCA databases more specific.

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

We analyze the responses that we get in line with the CDP Supply Chain Program in order to select suppliers. Measure of success: We measure the response rate and the average scoring level attained as general measures for success. With the climate protection survey, we achieve an above-average response rate of 79% (83% of production-related procurement spending). According to our suppliers’ self-assessments, they reduced their overall emissions by a total of 11.7 million t of CO₂-e compared to the previous year (2017: 16.5 million t of CO₂-e). Since 2016, the CDP has included science- based targets (SBTs) in the questionnaire: 29% of our suppliers questioned have already set SBTs or have undertaken to set such targets. These emission reduction developments within our supply chain are contributing to Volkswagen’s positive evaluation under the CDP rating’s Leadership index.

### **Comment**

### **Type of engagement**

Information collection (understanding supplier behavior)

### **Details of engagement**

Other, please specify (Suppliers environmental & social data)

### **% of suppliers by number**

100

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

100

### **% Scope 3 emissions as reported in C6.5**

15.8

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

All our suppliers are requested to answer a sustainability questionnaire which contains questions concerning environmental management and goals (i.e. presence of an environmental and/or energy management system, and whether the supplier is taking part in the CDP Climate Change program). All our suppliers are requested to minimize their impacts on the environment (see brochure "Sustainability in Supplier Relation"). The emissions of Purchased Goods and Services, which are directly supply chain-related, make up 15.8% of out total Scope 3 inventory. All material suppliers are requested to complete the questionnaire.

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

Measure of success: By the end of the reporting year, over 28,000 of our suppliers had completed the sustainability self-assessment questionnaire and submitted it to us. This covers around 92% of our total procurement volume. Impact: We use the responses to these self-assessments to help identify ways to enhance sustainability performance, and then communicate the latter to our suppliers. In the last fiscal year, by taking appropriate measures to enhance suppliers’ sustainability performance, we were able to improve the sustainability performance of more than 2,100 suppliers.

### **Comment**

### **Type of engagement**

Engagement & incentivization (changing supplier behavior)

### **Details of engagement**

Run an engagement campaign to educate suppliers about climate change

### **% of suppliers by number**

100

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

100

### **% Scope 3 emissions as reported in C6.5**

15.8

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

All our suppliers are requested to conduct the eLearning which includes lessons on environmental protection as well as energy efficiency and also a self-check to test their understanding from the lesson. The eLearning which is also available to all Volkswagen Group procurement staff, can be conducted in eight languages. The emissions of Purchased Goods and Services, which are directly supply chain-related, make up 15.8% of our total Scope 3 inventory. All material suppliers are requested to complete the e-learning module.

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

By the end of the reporting year, 31,000 suppliers – representing 74% of our procurement volume – had completed the e-learning module. Alongside the e-learning format, we also conduct issue-specific sustainability training courses and workshops with our suppliers at selected locations. During the reporting period, events were held in countries including Turkey, Germany, Mexico, Hungary, Thailand, China, Argentina and Brazil. In total, around 900 personnel employed by some 550 of our suppliers were given training on sustainability issues at these events.

### **Comment**

## **C12.1b**

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

### **Type of engagement**

Education/information sharing

### **Details of engagement**

Share information about your products and relevant certification schemes (i.e. Energy STAR)

### **% of customers by number**

90

### **% Scope 3 emissions as reported in C6.5**

### **Please explain the rationale for selecting this group of customers and scope of engagement**

In the most important markets for the Volkswagen Group, i.e. the EU, USA, China, labelling requirements for passenger car fuel efficiency are in place, as well as in many other markets. Volkswagen provides information about the use phase CO2 emissions and respective labels and certificates of individual models in sales materials, on our brands’ websites and at dealerships worldwide. The % stated in “size of engagement” refers to our passenger car sales in EU, USA and China, where the coverage of said engagement can be safely assumed and easily calculated: Car labeling directive in the EU: In the Europe/Other markets region, we sold 4.7 million vehicles (+0.2 %). MEPS in China: We delivered 4.2 (4.2) million vehicles (including imports) to customers in China in the reporting period. EPA fuel economy label in the US: In North America, Group sales stood at 0.9 million vehicles, a decline of 6.8% year-on-year. The sum of these markets account for 90% of our 2018 total deliveries of 10.834 million.

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

We measure the impact by monitoring the average fleet fuel consumption/emissions in the stated markets. Our fleet emission value has decreased in all three markets over the last four years (e.g. from 126 g/km to 123 g/km in EU27). However, a stagnation was visible in the last 2 reporting years in the EU and US. This could signify that impacts of product information sharing and labelling have somewhat diminished over time, in the context of customer preference for larger cars.

## **C12.3**

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

Direct engagement with policy makers

Trade associations

Funding research organizations

Other

## **C12.3a**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Focus of legislation** | **Corporate position** | **Details of engagement** | **Proposed legislative solution** |
| Clean energy generation | Support with minor exceptions | Erneuerbare Energien Gesetz (EEG, Renewable Energy Act, Germany) | Support for EEG and exceptions for “Eigenstromregelung” (rules for energy produced for own use); support for renewable energy generation for company sites in Germany |
| Other, please specify (Emissions) | Support with minor exceptions | Klimaschutzgesetz (Climate Protection Law, Germany) | Support for climate goals; active participation in study by Federation of German Industry (BDI) and in the “Nationale Plattform Mobilität” (NPM, National Platform Mobility, both Germany) |
| Energy efficiency | Support with minor exceptions |  |  |
| Mandatory carbon reporting | Support with minor exceptions |  |  |

## **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**

econsense

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

Consistent

### **Please explain the trade association’s position**

'econsense' is an association of leading, globally active companies and organisations of German business specializing in the area of sustainable development and corporate social responsibility (CSR). Founded in 2000 on the initiative of the Federation of German Industries (BDI), the goal of econsense is to provide a dialogue platform and think tank, with the dual objectives of advancing sustainable development in business and assuming social responsibility.

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

Volkswagen was involved in several project groups e.g. on 'reporting and ratings'. The results of the project groups support the goals of the organization. As an active participant Volkswagen has, like all the other members, an influence on the development of positions.

### **Trade association**

American Chamber of Commerce in Germany https://www.amcham.de/fileadmin/user\_upload/Public-Affairs/Corporate-Responsibility/151001\_COP21\_AmCham\_Positionspapier.pdf

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

Mixed

### **Please explain the trade association’s position**

See AmCham Germany statement “Stellungnahme (…) zu dem geplanten globalen Klimaschutzabkommen im Rahmen der UN Klimakonferent COP21 in Paris”, Oktober 2015

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

Volkswagen Group is putting forward the Group’s position regarding climate change legislation in discussions within trade associations: The Group has committed to move to CO2 neutral mobility by 2050 with an industry leading offensive especially of battery electric vehicles.

### **Trade association**

CSR Europe

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

Mixed

### **Please explain the trade association’s position**

See “Our 2030 Strategy, Mainstreaming the urgency for action” https://www.csreurope.org/our-2030-strategy-mainstreaming-urgency-action

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

Volkswagen Group is putting forward the Group’s position regarding climate change legislation in discussions within trade associations: The Group has committed to move to CO2 neutral mobility by 2050 with an industry leading especially offensive of battery electric vehicles.

### **Trade association**

Business Europe

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

Mixed

### **Please explain the trade association’s position**

See study “European Business Views On a Competitive Energy & Climate Strategy”, April 2019 https://www.businesseurope.eu/sites/buseur/files/media/reports\_and\_studies/final\_brochure\_energy\_and\_climate\_strategy\_april\_2019\_v2.pdf

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

Volkswagen Group is putting forward the Group’s position regarding climate change legislation in discussions within trade associations: The Group has committed to move to CO2 neutral mobility by 2050 with an industry leading offensive especially of battery electric vehicles.

### **Trade association**

European Automobile Manufacturers’ Association (ACEA)

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

Mixed

### **Please explain the trade association’s position**

See ACEA position paper “The COP21 Climate Change Conference”, November 2015 https://www.acea.be/uploads/publications/ACEA\_Position\_Paper\_-\_The\_COP21\_Climate\_Change\_Conference.pdf

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

Volkswagen Group is putting forward the Group’s position regarding climate change legislation in discussions within trade associations: The Group has committed to move to CO2 neutral mobility by 2050 with an industry leading offensive especially of battery electric vehicles.

### **Trade association**

German Association of the Automotive Industry (VDA)

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

Mixed

### **Please explain the trade association’s position**

See statements on “Environment and Climate” https://www.vda.de/en/topics/environment-and-climate.html

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

Volkswagen Group is putting forward the Group’s position regarding climate change legislation in discussions within trade associations: The Group has committed to move to CO2 neutral mobility by 2050 with an industry leading offensive especially of battery electric vehicles.

### **Trade association**

International Chamber of Commerce (ICC)

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

Mixed

### **Please explain the trade association’s position**

See press release “ICC hails entry into force of Paris Agreement”, November 2016 https://iccwbo.org/media-wall/news-speeches/icc-hails-entry-into-force-of-paris-agreement/

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

Volkswagen Group is putting forward the Group’s position regarding climate change legislation in discussions within trade associations: The Group has committed to move to CO2 neutral mobility by 2050 with an industry leading offensive especially of battery electric vehicles.

## **C12.3d**

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

Yes

## **C12.3e**

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

Volkswagen was an active member of the Vision 2050-project of the WBCSD. The WBCSD’s cornerstone Vision 2050 report calls for a new agenda for business laying out a pathway to a world in which nine billion people can live well, and within the planet’s resources, by mid-century. The report is a consensus piece that was compiled by 29 leading global companies from 14 industries and is the result of an 18 month long combined effort between CEOs and experts, and dialogues with more than 200 companies and external stakeholders in some 20 countries. The report features a set of agreed must haves. They represent vital developments that the report’s stakeholders hope organizations will consider putting in place within the next decade, to help ensure a steady course towards global sustainability is set. Ultimately, they are intended to provide a springboard for dialogue and debate. Must haves include – amongst others: Incorporating the costs of externalities, starting with carbon, ecosystem services and water, into the structure of the marketplace; Halving carbon emissions worldwide (based on 2005 levels) by 2050 through a shift to low-carbon energy systems; Improved demand-side energy efficiency, and providing universal access to low-carbon mobility.

Alignment with strategy: Our work with the WBCSD is consistent with our ambitious targets / our strategy on climate change. We welcome the ratification of the Paris Agreement on climate change, which aims to limit global warming to less than 2°C above pre-industrial levels. Referring to international climate agreements, our former CEO Matthias Müller was calling upon the automotive industry to ensure that all fleet CO₂ emissions “are steadily reduced to zero by 2050.”

In this context, the Volkswagen Group is currently defining the decarbonization index (DCI) as a strategic indicator which we use to measure progress. It measures products’ CO₂ emissions along the entire value chain. It is calculated by dividing our CO₂ footprint by the number of vehicles produced. It thus incorporates both direct and indirect CO₂ emissions from the individual production sites (Scope 1 and 2), as well as all other CO₂ emissions occurring throughout the life cycle of the vehicles sold – from the extraction of raw materials through the use phase to the recycling of end-of-life vehicles (Scope 3). The DCI thus makes it possible to pursue milestones in a transparent, holistic way as we make our way toward climate-friendly mobility. We are currently defining DCI target values for 2025, in consultation with the Volkswagen Group brands. The outcome should ensure that our target values contribute to the two-degree target set in the Paris Agreement concluded at the UN Climate Conference in December 2015.

The Volkswagen Group [holds a position within the Council](https://www.agora-verkehrswende.de/en/about-us/council/) of the thinktank “Agora Verkehrswende”. The Council of Agora Verkehrswende is the central forum for discourse on the transformation of the transport system with the objective of full decarbonisation by 2050 ([source](https://www.agora-verkehrswende.de/en/about-us/council/)). Volkswagen Group is putting forward the Group’s position regarding climate change legislation in discussions within the Council: The Group has committed to move to CO2 neutral mobility by 2050 with an industry leading offensive of battery electric vehicles.

For assistance on strategic topics of sustainability and social responsibility, the Volkswagen Group [appointed an international Sustainability Council](https://www.volkswagenag.com/en/sustainability/sustainability-council.html) in September 2016. The renowned experts from business, politics, science and society advise the company on the topics of sustainable mobility and environmental protection, social responsibility and integrity as well as the future of work and digitization. They act independently, are not bound by instructions and have extensive rights of information, consultation and initiative. The Council meets regularly with the Group Management Board as well as the employee representatives and also exchanges views with the Monitor team. The Council advises the company and makes recommendations as to what steps it considers necessary to become a world-leading provider of sustainable mobility. In 2018, the focus was on the topics Future Pact, integrity and cultural change as well as e-mobility. In this context, the Council took insight into the Roadmap E and the I.D. models and participated in the Volkswagen Future Mobility Days with the Group Management Board. Furthermore, the Sustainability Council implemented the three projects decided in 2017 and launched three further initiatives: a project on a sustainable battery supply chain, a visiting professorship on open labs and cultural change, and the development of a comprehensive sustainability narrative.

## **C12.3f**

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

The Corporate Sustainability Steering Committee regularly updates the Group Board of Management on issues of relevance to sustainability. The steering committee includes top managers from corporate functions, as well as representatives of the Group Works Council and brands. Its tasks include defining strategic sustainability goals and position statements, identifying key action areas and approving the sustainability report. Management indicators are used to monitor the extent to which these sustainability goals are being met. The steering committee meets regularly under the leadership of the external affairs and sustainability function.

Other Group-wide committees, such as the Corporate Environmental and Energy Steering Group, the CO2 Steering Group, the Vehicle Recycling Steering Group and the Corporate Working Group “Life Cycle Engineering” , address a range of specialist issues.

The members / corporate representatives of the above- mentioned projects and initiatives are members of the above -mentioned Corporate Environmental and Energy Steering Group. Their active memberships ensure a high degree of consistency with the overall climate change strategy process.

To ensure consistency and that we are speaking with one voice, we are currently in a process of aligning our structures with the general management directive of the Group following the principle of Group steers Brands, Brands steer Regions. A Group Steering Committee and a Group Policy are planned to be in place by mid-2019.

## **C12.4**

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

### **Publication**

In mainstream reports

### **Status**

Complete

### **Attach the document**

[custom\_vw\_ar18\_2019-05-15\_22-13-11.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/CEOfHsObrU2qJKwybRAEMg/customvwar1820190515221311.pdf)

### **Page/Section reference**

51-55, 133-139, 144, 154, 163-177

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Other metrics

### **Comment**

Annual Report 2018

### **Publication**

In voluntary sustainability report

### **Status**

Complete

### **Attach the document**

[Nonfinancial\_Report\_2018\_e (5).pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/T4-LiipNKkS8wZBC-0UxrQ/NonfinancialReport2018e5.pdf)

### **Page/Section reference**

11, 24-26, 44-48, 54-60, 81-83

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

### **Comment**

Nonfinancial / Sustainability Report 2018

## **C14. Signoff**

## **C-FI**

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

For all described risks:

The description of the risk factor, and its potential impact on the Volkswagen business, including the estimates of potential financial impact and cost of management, amount to forward-looking statements. Although Volkswagen believes that the expectations reflected in these forward-looking statements are reasonable, it can give no assurance that they will materialize or prove to be correct. Because these statements involve risks and uncertainties, the actual result or outcome could differ materially from those set out in the forward-looking statements as a result of, among other things: the Volkswagen Group's ability to successfully develop, introduce and expand its products; changes in international and local economic, business and industry conditions; significant changes in economic, political and market conditions in China, including the effect of competition from new market entrants, on Volkswagen Group's vehicle sales and market position in China; the Volkswagen Group's ability to manage the legal and regulatory proceedings faced by it; and the Volkswagen Group's ability to manage the legal and regulatory aspects of its operations, including environmental compliance. Additional factors could cause the Volkswagen Group's actual financial impact or cost of management to differ materially from that described above.

## **C14.1**

### **(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

|  |  |  |
| --- | --- | --- |
|  | **Job title** | **Corresponding job category** |
| Row 1 | Chief Executive Officer / Chairman of the Board of Management | Chief Executive Officer (CEO) |