# **BMW AG - Climate Change 2018**

## **C0. Introduction**

## **C0.1**

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

Bayerische Motoren Werke G. m. b. H. came into being in 1917, having been founded in 1916 as Bayerische Flugzeugwerke AG (BFW); it became Bayerische Motoren Werke Aktiengesellschaft (BMW AG) in 1918. The BMW Group has meanwhile become one of the ten largest car manufacturers in the world. With our BMW, MINI and Rolls-Royce brands, we possess three of the strongest premium brands in the automobile industry. We also command a strong market position in the motorcycle sector and operate successfully in the field of financial services. The Strategy Number ONE adopted in 2007 has put us on the right path to a successful future. Since 2007 and the introduction of Strategy Number ONE, the company has grown to a new level. We have developed successfully from being the leading manufacturer of premium vehicles to becoming the leading provider of premium mobility and services. At the same time, our environment has changed at a rapid pace. Digitalization, in particular, has brought about new technological opportunities for the automobile industry, ranging from automated driving to connectivity and automation in production. In the light of these developments, we have revised and updated our strategy for the future. We are operating from a solid basis: the BMW Group successfully combines financial strength, innovation and profitability with further growth, and we intend to pursue this path further with Strategy NUMBER ONE > NEXT. Our business model will continue to focus on sustainable individual mobility in the premium segment – combined with attractive mobility services. This means in particular the electrification of all BMW Group brands and model series. The customer is at the heart of everything we do. With our Strategy Number ONE > NEXT, we are looking ahead to the year 2020 and beyond that, up to 2025.Long-term thinking and responsible action have long been the cornerstones of our success. Striving for ecological and social sustainability along the entire value-added chain, taking full responsibility for our products and giving an unequivocal commitment to preserving resources are prime objectives firmly embedded in our corporate strategy. For these reasons, the BMW Group is the only company in the automotive sector continuously listed in the Dow Jones Sustainability Indices since 1999.Sustainability is a key component of the strategic approach to Strategy NUMBER ONE > NEXT and makes an important contribution towards our competitive edge. The sustainability strategy is consistent with the corporate strategy and pursues the thorough integration of sustainability. It applies across all board divisions worldwide. The primary objective is to instill sustainability in each and every link of the value-added chain and its underlying processes. To implement this sustainability strategy we have established a set of core principles and defined fields of action. Using a so-called “environment radar” which includes ecological and social criteria, engaging in dialogue with stakeholders, taking sustainability into account in all decisions and keeping a tight watch over the whole value-added chain are key elements of our sustainability management. Corporate sustainability measured in balanced scorecard terms (at Group level) was first included as a formal corporate objective at the beginning of 2009. Detailed targets are then derived for each of the divisions within the Group. Today, every project must be measured in terms of corporate sustainability. This involves measuring the consumption of resources and emission levels as well as the social and socio-political consequences of the various solutions at hand. As part of the process of improving the way in which we measure and manage our corporate sustainability activities, we expanded our sustainability organization already in 2009. The Sustainability Circle, which comprises department heads from all divisions, drafts decisions for presentation to the Sustainability Board and is responsible for implementing sustainability activities across the Group. Due to the increasing relevance of the topic of sustainability for the core business of the BMW Group the Sustainability Circle has been integrated into the Strategy Circle, a standard committee of the BMW Group. The Sustainability Board, composed of the entire Board of Management, was set up in summer 2009 and is responsible for setting the strategic course with respect to corporate sustainability.

## **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 2017 | December 31 2017 | No | <Not Applicable> |
| Row 2 | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Row 3 | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Row 4 | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C0.3**

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

Austria

Brazil

China

Germany

India

South Africa

Thailand

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)

## **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) of the individual(s) on the board with responsibility for climate-related issues.**

|  |  |
| --- | --- |
| **Position of individual(s)** | **Please explain** |
| Board/Executive board | The highest level of direct responsibility for climate change is the Sustainability Board (SB). It includes the full board of management. The SB is setting the strategic course for sustainability issues / climate change (CC). Like this all board members have full oversight over CC related issues to make sure that CC as core strategic driver is systematically implemented in all board divisions. The SB is part of our three level sustainability organization: The SB determines the strategic alignment for sustainability issues. The Sustainability Circle SC (senior vice president level), being part of the strategy circle, is in charge of the operational implementation in the departments and reports to the SB. The senior vice presidents are responsible to reach agreed targets and report progress back to the SC. Examples for divisional targets in the area of climate change are CO2-emission reductions of the BMW Group fleet or energy- and CO2- reduction targets in BMW Group operations. |

## **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 | We selected “scheduled – all meetings” as well as all “Governance mechanisms” because it is obligatory for every submissions to the Board of Management to assess implications on sustainability issues such as resource consumption or impact on the environment. According to the BMW Group vision of being the world’s most successful and sustainable premium provider of individual mobility many decisions are directly or indirectly linked to climate related issues. Sustainability is a core principle in our strategy Number ONE > NEXT and anchored in the strategic approach which is why climate change plays an important role when reviewing and guiding strategy as well as major plans of actions, business plans or annual budgets. The same is true when overseeing major capital expenditures, acquisitions and divestitures. As a major example we mention our heavy investments in vehicle efficiency, electrification and battery electric vehicles (BEV) as well as in Joint Ventures to support market penetration of BEVs. Energy recovery in low-voltage vehicle electricity systems is in the standard configuration since 2007. In the next few years, 12 V systems in smaller vehicles and 48 V systems in medium and larger vehicles will increase the recovery potential. We rolled out the Auto Start Stop function on a broad basis. We offer plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman (PHEV). In 2019 we will launch a Battery Electric Vehicle (BEV) version of the MINI and in 2020 of the BMW X3. In 2025 we expect a 15-25% share of BEVs and PHEVs. All this resulted e.g. in in the reduction of CO2 emissions of our newly sold vehicles in Europe (EU-28) by 42 % between 1995 and 2017. Until 2020 our goal is to reduce CO2-emissions by at least 50%. CO2-targets are monitored in vehicle markets to reach the increasingly strict regulatory requirements as well as our own ambitious standards. Expanding the charging infrastructure is a fundamental condition for the breakthrough of electro mobility. In founding the IONITY joint venture, the BMW Group together with other OEMs is setting the course for creating a high-performance rapid charging network for electric vehicles in Europe. |

## **C1.2**

### **(C1.2) Below board-level, provide the highest-level management 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 (Chief Development Officer)  *Member of the Board of Management of BMW AG with responsibility for Development.* | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |
| Other C-Suite Officer, please specify (Chief Production Officer)  *Member of the Board of Management of BMW AG, Production* | Both assessing and managing climate-related risks and opportunities | Half-yearly |

## **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.**

The answer explains (i) where in the organization the position lies, (ii) what the rational and responsibilities are and (iii) how climate change (CC) related issues are monitored.

A. “Chief development officer”:

(i) The Member of the Board of Management of BMW AG with responsibility for Development (MBoMD) leads the R&D department,

He is accountable for all decisions for the R&D department, based on the strategic orientation and decision framework stipulated at Board of Management meetings.

(ii) A key issue is energy consumption and CO2-emissions of BMW Groups worldwide vehicle fleet. Therefore a key process entails us defining specific CO2-targets for each product line and each new vehicle project in order to achieve our strategic targets on vehicle fleet CO2-emissions as well as all regulatory requirements worldwide. Our Strategy unit is responsible for monitoring and further developing these targets.

The “Complete Vehicle Architecture” unit within the R&D department coordinates the development and implementation of fuel-saving technologies in the individual vehicle projects. This ensures that the market-specific fleet requirements are taken into consideration in the very early stages of vehicle development and are subject to Efficient Dynamics (ED) measures during the development process. Under the term ED, the BMW Group has been successfully working on reducing fuel consumption and vehicle emissions through the development of highly efficient combustion engines, increasing electrification of drivetrains respectively plug-in hybrid vehicles (PHEV) and battery electric vehicles (BEV), lightweight construction, improved aerodynamics and coordinated energy management. Because of the importance of the R&D department oversight over CC related issues was assigned to the MBoMD. The top decision making bodies such as the “development circle” inside the R&D department are led by the MBoMD. Decisions binding for the R&D department are made there as e.g. efficient dynamics measures to reach the vehicle specific CO2-emission targets.

(iii) The MBoMD monitors CC related issues through the top decision making bodies described above (development circle). All technical issues and all vehicle projects as well as e.g. strategic questions about electrification or digital services are discussed there. Decisions on e.g. strategic targets on vehicle fleet CO2-emissions to be made in the Board of Management (BoM) are analyzed technically and aligned with representatives of the corresponding departments.

B. “Chief production officer”:

(i) The Member of the Board of Management of BMW AG production (MBoMP) leads BMW Group Production. He is accountable for all decisions for worldwide production, based on the strategic orientation and decision framework stipulated at Board of Management meetings.

(ii) We are facing the challenge of conserving resources and tackling CC, also very relevant for our production processes. We require a reliable supply of resources for the production of our vehicles and the energy we consume generates emissions. Therefore the responsibility for CC also relies with the MBoMP. One major responsibility is to specific energy and CO2-targets for the BMW Group production network. For energy efficiency our target is a 45% improvement by 2020, taking 2006 as a base year. For CO2 our target is to reduce the absolute CO2-emissions in the production network by 20% between 2015 and 2020 and to purchase 100% of electricity from renewable sources by 2020. The BMW Group’s Strategy unit is responsible for monitoring and further developing yearly targets consistent with the overall 2020 targets.

Together with the planning departments for the production technologies within the production department, the contribution for resource efficiency of the production sites respectively the technologies are defined and measures are agreed in terms of a target roadmap until 2020. In a similar way a target roadmap for CO2-efficiency and purchase of green electricity is worked out. Both have flexibilities until 2020 but are fixed for the reporting year as agreed targets.

(iii) The top decision making body for production that also monitors CC related issues is the “production circle”, led by the MBoMP. Decisions binding for production are made there as e.g. yearly targets or technical measures. As an example the target for energy efficiency in 2017 was aligned end of 2016 between the planning departments, the production sites as well as BMW Group’s Strategy unit and decided in the “production circle”. Management and control of resource consumption along with identification of potential risks in order to achieve our goals form an integral part of environmental management at our plants. The steering function of the BMW Group’s international environmental network controls these measures. In case half year target monitoring shows deviations, counter measures are defined and decided in the “production circle” to guarantee target achievement.

## **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.**

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

Chief Executive Officer (CEO)

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

The compensation of the CEO has two components: Fixed remuneration consists of a base salary (paid monthly) and other remuneration elements as the use of company cars. The variable remuneration comprises variable cash remuneration and share-based remuneration components. The bonus is made up of two components, each equally weighted, namely a corporate earnings-related bonus and a personal performance-related bonus. The personal performance-related bonus is derived in terms of a performance factor. The Supervisory Board sets the performance factor on the basis of its assessment of the contribution of the CEO to sustainable and long term oriented business development. The following citation of our annual report p. 229 explains the criteria for the performance factor: “Performance factor criteria include innovation (economic and ecological, e. g. reduction of CO2 emissions), customer orientation, ability to adapt, leadership accomplishments and attractiveness as employer, progress in implementing the diversity concept and activities that foster corporate social responsibility."

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

Board/Executive board

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

The compensation of Board of Management members has two components: Fixed remuneration consists of a base salary (paid monthly) and other remuneration elements as the use of company cars. The variable remuneration comprises variable cash remuneration and share-based remuneration components. The bonus is made up of two components, each equally weighted, namely a corporate earnings-related bonus and a personal performance-related bonus. The personal performance-related bonus is derived in terms of a performance factor. The Supervisory Board sets the performance factor on the basis of its assessment of the contribution of the relevant Board of Management member to sustainable and long term oriented business development. The following citation of our annual report p. 229 explains the criteria for the performance factor: “Performance factor criteria include innovation (economic and ecological, e. g. reduction of CO2 emissions), customer orientation, ability to adapt, leadership accomplishments and attractiveness as employer, progress in implementing the diversity concept and activities that foster corporate social responsibility."

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

Executive officer

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

Every Board of Management member agrees with its executive officers corporate and divisional targets in terms of balanced scorecards. Examples for divisional targets in the area of climate change are: CO2-emission reductions of the BMW Group fleet; emission, waste, and energy reduction targets for each production site and for the central departments as well as targets regarding external sustainability ratings such as Dow Jones Sustainability Index, FTSE4Good Index, and Carbon Disclosure Project. Achieving these targets is directly linked to the variable income component.

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

Management group

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

Executive officers agree detailed targets with their respective management group. As an example Senior Vice President "Corporate Strategy and Planning, Environment”, agrees with Head of sustainability and environmental protection detailed targets. Some examples are: - Further development and implementation of the sustainability strategy in all divisions; - Integration of objectives for the corresponding year in the objective management process for plants; - Assurance of the target achievement concerning sustainability ratings such as Dow Jones Sustainability Index, FTSE4Good Index, and Carbon Disclosure Project; - Organization of the implementation and maintenance of the BMW Group wide standardized environmental management system of which one element is our database Ecofacts for all environmental data; - Support and further development of the external international sustainability network. Another example are targets agreed between plant managers and their management group for resource efficiency (e.g. energy consumption per vehicle produced). Achieving these targets is directly linked to the variable income component.

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

Energy manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Efficiency project

### **Comment**

Energy management staff has targets corresponding to energy and CO2 emission reduction, depending on their position. These targets are linked to the variable part of their remuneration. The percentage amount in general decreases (in relation to fix parts of remuneration) with decreasing responsibility. Energy managers located in our production sites worldwide as well as in central departments have various targets corresponding to climate change. They have to meet detailed targets derived from the divisional targets measured in balanced scorecard terms (at Group level). One target is for example 45% less energy consumption per vehicle produced (2006-2020). This target is broken down to all production sites with various energy managers having their responsibilities and, respectively, their targets. Achieving these targets is directly linked to the variable income component.

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

Environment/Sustainability manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Efficiency target

### **Comment**

Environmental and sustainability managers e.g. in our production sites have targets corresponding climate change, depending on their position. These targets are linked to the variable part of their remuneration which in general decreases (in relation to fix parts of remuneration) with decreasing responsibility. Detailed targets are derived from the divisional targets measured in balanced scorecard terms (at Group level). Examples are: - 25% less CO2 in the fleet of new vehicles (2008-2020) - 45% less energy and corresponding CO2-emissions per vehicle produced (2006-2020) - And targets regarding external sustainability ratings such as Dow Jones Sustainability Index, FTSE4Good Index, and Carbon Disclosure Project. Achieving these targets and the implementation of measures are directly linked to the variable income component.

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

All employees

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Efficiency project

### **Comment**

The BMW Group has implemented a worldwide employee’s idea management system a long time ago. In addition to the permanently active online supported suggestion scheme campaigns have been running to specific subjects, for example energy saving measures. In 2017 about 2,800 ideas were put into practice, resulting in savings of € 18.2 million, including a significant share of ideas which address sustainability issues like energy or water saving as well as traffic volume reduction through optimized logistics. Implemented improvement ideas result in a premium paid to the employee, which is proportional to the amount of qualitative benefits (e.g. improved air quality or ergonomics) as well as cost savings.

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

All employees

### **Types of incentives**

Recognition (non-monetary)

### **Activity incentivized**

Efficiency project

### **Comment**

(Sustainability and carbon saving related) Target achievement is one main criterion for the annual, individual performance appraisal and therefore does not only influence the pay out of the personal bonus but the future career of each individual as a whole.

## **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 | In line with Group’s internal management system, the outlook of BMW annuals report covers a period of one year. Opportunities and risks are assessed in the internal risk report and in the risk report of the annual report with respect to a medium-term period including the current business year and the two following years (still short term in the sense of CDP). |
| Medium-term | 2 | 6 | Long-term planning for BMW Group includes the planning for the next six years (we understand this as medium term horizon in the sense of CDP) following the current business year. |
| Long-term | 6 | 12 | A prolonged long-term planning for BMW Group includes the timespan of an additional six years (we understand this as long term horizon in the sense of CDP). |

## **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 | We considered our worldwide operations within the identification process of risks/opportunities driven by climate parameters. On a market level, climate change related risks and opportunities (CCR&Os) are ongoing monitored. The results of the environmental risk management process are part of the regular reporting to the board of management / supervisory board, at least twice a year and regularly for risks with significant impact. All CCR&O are reported twice a year to the Sustainability Board (SB) (full board of management). The SB makes main decisions for the mitigation and adoption strategy and its implementation throughout the entire value chain. All business decisions (e.g. new facilities) are reached after analyses of CCR&O. Evaluation of CCR&O is part of long-term planning. |

## **C2.2b**

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

The scope of climate change risks and opportunities (CCR&O) identification and management includes BMW Group wide direct physical risks and opportunities (R&Os) as well as indirect R&Os, e.g. from regulation and changing consumer behavior.

The results of the environmental risk management process are part of the regular reporting to the board of management / supervisory board, at least twice a year and regularly for risks with significant impact. All CCR&O are reported twice a year to the Sustainability Board (SB) (full board of management). The SB makes main decisions for the mitigation and adoption strategy and its implementation throughout the entire value chain. All business decisions (e.g. new facilities) are reached after analyses of CCR&O. Evaluation of CCR&O is part of long-term planning.

Identification at company level:

BMW Group’s process of assessing, identifying, monitoring and steering CCR&O is part of A) the enterprise risk management process (ERMP), integrated in B) the Strategy/Sustainability Circle (SC) resp. Sustainability Board (SB) & part of C) the management process established to ensure the reduction of CO2 emissions of BMW Group’s vehicle fleet.

A) ERMP comprises early identification of R&Os, their measurement, management and monitoring in a decentralized structure. Within this internal risk management network covering all organizational levels dedicated managers are responsible for reporting and managing CCR&O. The results of the ERMP are reported to a steering committee which prioritizes R&Os (CCR&O) reported to the Board of Management.

B) In the SC tasks and measures for the climate protection strategy of the BMW Group are discussed and proposed to the SB (entire Board of management) which sets the strategic course with respect to corporate sustainability.

C) The fleet CO2 strategy, corresponding targets for each vehicle project and their fulfilment are set and monitored by corporate planning, which reports directly to the Board of Management. CO2 targets are refined and adjusted in line with new regulations and alterations in demand and offer of new cars.

Identification at Asset Level:

Assessment of CCR&O at plant level and relevant central department units is carried out in terms of the ERMP by the responsible network managers. Audits for ISO14001, in place in all plants and relevant central units, verify our “on-site” CCR&O assessment and monitoring processes regularly.

Assessment of substantive financial impacts:

Risk/opportunity is defined as any event which might occur with a certain probability that could have a negative/positive impact on the achievement of targets. Main targets are: Growth, profitability, efficiency and sustainable levels of business. Materiality for prioritization is measured as amount of risk (including climate change related risks) for profit/loss and cash flow as well as image/reputation by the magnitude of impact and likelihood of occurrence. The amount of risks is classified as low (0-50 Mio. €), medium (>50-400 Mio. €) and high (>400 Mio. €). Risk with potential substantive financial impact are those with medium and high risk amounts. CCR&O are allocated to categories (regulatory, reputational, shifts in customer demand, operational, physical). Risk catalogues help the risk management network representatives to reflect/categorize and aggregate all CCR&O. All locations (plants, logistic issues etc.) are considered as well as risks in the supply chain. Important weather related risks considered are flooding, tornados, hail or interruption of supply chains due to climate changes/ availability of water. Assessment, evaluation and prioritization of CCR&O is supported by a team of risk/insurance managers and external expertise (e.g. Allianz, Munich Re). Physical risks are covered by insurances and are part of the annual reassessment with our insurance companies. Risks reported to the centralized risk management from the network are aggregated/prioritized and reported to the board of management/supervisory board. In strategic planning material short to LONG TERM CCR&Os are reflected.

## **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 | Relevance: Climate-related risks from current regulation are generally relevant for BMW Group and the Automotive Industry as a whole. More specifically, the tightening of current climate-related regulation can include risks for BMW. Company specific: A company specific example is the introduction of increased taxation schemes. Taxation is directly related to the total cost of ownership (TCO) for the customer. If the vehicles of a car manufacturer are especially negatively affected by an increased taxation scheme this will impact the purchase decision. The risks are sector specific, but possess an increased risk level for the BMW Group as premium car manufacturer (e.g. cars with larger engine sizes). E.g. in the French bonus/malus taxation scheme the values increased in 2017 drastically when compared to previous years (e.g. the malus for a vehicle emitting more than 190 g CO2/km increased from 8.000 € in 2016 to 10.000€ in 2017). Another example is that a couple of EU-markets focus their incentives on BEV and no longer on PHEVs (e.g. France, UK) with potential negative impact on our future PHEV sales (2017: 71,598 PHEV worldwide). In a similar way nearly all of our worldwide passenger car sales are affected by emission taxation and regulation schemes. If they are changed with negative impacts on sales figures as this could e.g. be the case for our PHEV offers it might result in a decrease in sales volume. Consequently benefits on continental or national levels might drop, resulting in an impact on the overall annual result. E.g., a drop in sales of 1% might have an estimated impact between 150 and 250 Mio. € Gross profit, depending on the models affected. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in the BMW Group risk management process. In the internal risk catalogue climate-related risks of “current regulation” are included in the risk categories “external/global environment; new regulations” for tightening of current regulation or “product development and manufacturing; product introduction” if current regulation exposes risks in the homologation and production of vehicles. |
| Emerging regulation | Relevant, always included | Relevance: Climate-related risks from emerging regulation are generally relevant for BMW Group and the Automotive Industry as a whole. Specific example: The introduction of new climate-related regulation, mostly for CO2 or local emissions can include risks for BMW. For example, local restrictions affecting product usage in specific sectors may limit our sales in individual markets. More specifically we face risks as provider of premium mobility. Regulators could propose uneven load distribution to meet regional fleet targets. At the same time BMW Group as premium manufacturer has to meet high quality and comfort demands of their customers. A deciding factor in achieving e.g. a post 2021 target of EU28 is the success of e-mobility. However, the framework conditions have not yet been solidified in the majorities of states and cities. The uncertainty of regulations regarding incentives for the accelerated introduction of alternative drive vehicles and the available charging infrastructure have major influence on the volatility of the e-mobility business case. The development of market shares for battery electric and plug-in hybrid electric vehicles are not yet easily predicted. The uncertainty about stronger limits in the future and the possibility of low emission zones with stricter limits constitutes a risk. This may affect local demand for our vehicles and hence have a negative impact on sales, margins and, possibly, the residual value of these vehicles. E.g. a drop in sales of 1% might have an estimated impact between 150 and 250 Mio. € Gross profit, depending on the models affected. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in BMW Groups risk management process. In the internal risk catalogue climate-related risks of “emerging regulation” are included in the risk categories “external/global environment; new regulations” for new regulation which limit the use of BMW Group vehicles or “product development and manufacturing; product introduction” if emerging regulation exposes risks in the homologation and production of vehicles. |
| Technology | Relevant, always included | Relevance: Climate-related risks from Technology are generally relevant for BMW Group and the Automotive Industry as a whole. Specific example: Climate change (CC) is a driving force for transformation of the automotive industry. Electrification is a priority area in BMW Groups Strategy NUMBER ONE > NEXT, which provides us with a strategic roadmap up to 2025. We are closely monitoring technological improvements, in particular in the development of battery cells. A potential risk could be that competitors gain a competitive advantage by finding better technology solutions. Further risk could emerge from the complexity of such new technologies and its handling which could lead to increased development/quality costs. However, BMW Group has introduced the i3 already in 2013, a battery electric vehicle (BEV), followed by the i8 in 2014, a plug-in hybrid electric vehicle (PHEV) and gained comprehensive technical knowledge. We sold in 2017 103,080 BEVs and PHEVs, about 4% of our total sales volume, and are e.g. market leader in Europe with a 21% market share. Due to our strong position in electro mobility and corresponding technologies we see CC driven technological changes as an opportunity rather than a risk. To sustain our leading role we concentrate all our technological expertise relating to battery cells at a new competence center. This interdisciplinary competence center aims to advance battery cell technology and introduce it into production processes. The company will invest a total of 200 million euros in the location over the next four years, International experts working in the new development labs and facilities will conduct important research to refine cell chemistry and cell design. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in the BMW Group risk management process. In the internal risk catalogue climate-related risks of “technology” are included in the risk category “product development and manufacturing” for risks in the homologation process and necessary changes for the production planning of vehicles. |
| Legal | Relevant, always included | Relevance: Climate-related legal risks are generally relevant for BMW Group and the Automotive Industry as a whole. Potential risks in that category are related to compliance with the law - a basic prerequisite for the success of the BMW Group. Applicable law provides the binding framework for the BMW Group’s worldwide activities. As a result of its global operations, the BMW Group is exposed to various legal risks, including those related to climate-related regulations. Specific example: A Compliance Management System is in place at BMW Group to ensure that the representative bodies, managers and staff consistently act in a lawful manner. A company specific example for this risk type related to climate change is the discussion around diesel engine exhaust emissions and its future. Since 2015, the discussion has led to ongoing criticism of the automotive industry, especially in Europe and the USA. In the course of this discussion, the impression was often created that almost all manufacturers had manipulated exhaust values. For the BMW Group, compliance with legal requirements, including local test requirements, has top priority. The BMW Group has corresponding Compliance Management Systems to ensure that legal requirements are met and risks e.g. from legal prosecutions related to individual or organizational misbehavior towards emissions regulations are minimized. Our administrative expenses (3,393 million € in 2017) cover many full time employees being part of our worldwide compliance system. We believe modern diesel cars continue to have a future. Diesel engines emit 15% less CO2 on average than petrol engines. Therefore diesel engines can make an important contribution towards achieving national and international CO2 reduction goals. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in the BMW Group risk management process. In the internal risk catalogue climate-related risks of “legal” are included in the risk category “litigations and contractual or compliance cooperation’s violation”. |
| Market | Relevant, always included | Relevance: Climate-related market risks are generally relevant for BMW Group and the Automotive Industry as a whole. Specific example: More specifically changes in customer Behavior, which can also be brought about by changes in attitudes, values, environmental factors and fuel or energy prices can pose risks to BMW Group. A company specific example is around the ongoing political and public discussion on diesel engines which could adversely affect demand for diesel vehicles, contrary to our planning. At the same time, however, this could lead to increased worldwide demand e.g. for PHEV/BEV with a share of about 4% of BMW Group vehicle sales. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in the BMW Group risk management process. In the internal risk catalogue climate-related risks of “market” are included in the risk category “customer (market, after sales and product related services”). |
| Reputation | Relevant, always included | Relevance: Climate-related reputation risks are generally relevant for BMW Group and the Automotive Industry as a whole. Climate-related reputation risks are often closely linked to other climate-related risks. Specific example: Introduction of new climate-related regulation, mostly for CO2 or local emissions, can induce reputation risks specific for the BMW Group as premium manufacturer. We have to meet high quality and comfort demands of our customers. Regulators could propose uneven load distributions to meet regional fleet targets. If we would not be able to comply with CO2-emission targets as e.g. post 2021 EU28 CO2-emission targets (about 40% of our total sales in 2017) we could face negative press with corresponding negative impact on our reputation and customer churn in addition to potential penalties. Consequently benefits on continental or national levels might drop, resulting in an impact on the overall annual result. E.g., a drop in sales of 1% might have an estimated impact between 150 and 250 Mio. € Gross profit, depending on the models affected. However, BMW Group increases continuously the CO2 efficiency of its vehicles. Since 2007 BMW Group’s Efficient Dynamics (ED) is a comprehensive technologic approach. It includes efficient dynamics technologies such as highly-efficient automobiles with gradually refined combustion engines, lightweight construction, improved aerodynamics and coordinated energy management as well as Plug-in hybrids and battery electric vehicles. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in the BMW Group risk management process including their reputational effects. Additional to financial risks, significant reputational risks (including those stemming from financial risks) are reported at least twice a year to the risk management steering committee and the board of management. These include risks related to climate. |
| Acute physical | Relevant, always included | Relevance: Acute climate-related physical risks are generally relevant for BMW Group and the Automotive Industry as a whole. Especially if the number of natural catastrophes rises, BMW Group could be affected both on the demand and production side. Specific example: On the one hand natural disasters could have a lasting negative impact on the global economy and international capital markets. As another example related production stoppages and downtimes represent risks which the BMW Group addresses through appropriate precautions. These risks vary widely with the degree of damage. E.g. a tornado could damage the BMW Group plant Spartanburg (USA) and cause a breakdown of production up to 12 months. This would represent a damage in the amount of up to 8 billion €. However, due to our flexible production system we can shift volumes between plants and/or we can catch up lost volumes in the affected plant itself. In combination with our worldwide insurance solution possible financial implications can be reduced to a large extend. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in the BMW Group risk management process. In the internal risk catalogue climate-related risks of “acute physical” are included in the risk category “external/global environment; environment; natural risks” |
| Chronic physical | Relevant, always included | Relevance: Chronic climate-related physical risks are generally relevant for BMW Group and the Automotive Industry as a whole. If economic and living conditions worsen, e.g. through water shortages, BMW Group could be affected both on the demand and production side. Specific example: On the one hand worsening living and economic conditions and potential international conflicts arising out of consequential migration movements could have a lasting negative impact on the global economy and international capital markets. As another example production stoppages and downtimes e.g. due to water shortages represent risk, even though BMW Group production sites are planned accordingly to avoid such risks. These risks vary widely with the interruption duration. E.g. a one week breakdown of production of our Rosslyn site (South Africa) located in a region with water stress could lead to an estimated impact between 5 and 15 Mio. € Gross profit (inherent risk before mitigation). However, due to our flexible production system we can shift volumes between plants and/or we can catch up lost volumes in the affected plant itself. In combination with our worldwide insurance solution possible financial implications can be reduced to almost zero. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in the BMW Group risk management process. In the internal risk catalogue climate-related risks of “chronic physical” are included in the risk category “external/global environment; environment; natural risks”. |
| Upstream | Relevant, always included | Relevance: Climate-related upstream risks are generally relevant for BMW Group and the Automotive Industry as a whole. Close cooperation between carmakers and suppliers in the development and production of vehicles and the provision of services generates economic benefits, but also increased dependency. Company specific: Potential reasons for the failure of individual suppliers include in particular non-compliance with sustainability or quality standards, the occurrence of natural hazards, fires and insufficient supply of raw materials. These examples could potentially lead to e.g. production stoppages and downtimes. Changes in physical climate parameters could e.g. induce changes in the availability of resources. The price of water and energy could increase. If the risk materializes via suppliers e.g. the energy costs in the whole BMW Group supply chains could in average increase in the magnitude of 2-5%, which would represent an increase of purchasing costs of up to 200 million €. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in the BMW Group risk management process. In the internal risk catalogue climate-related risks of “upstream” are included in the risk category “product development and manufacturing; procurement / purchasing /foreign production”. |
| Downstream | Relevant, always included | Relevance: Climate-related downstream risks are generally relevant for BMW Group and the Automotive Industry as a whole. Company specific: For example a risk type that affect the use of BMW Group vehicles is the trend to switch to mobility services instead of owning own vehicles, especially in urban areas. BMW monitors this downstream risk closely. In fact we see this more as an opportunity. We already have introduced e.g. our car sharing services DriveNow and ReachNow. By 31 December 2017, the DriveNow car-sharing service had more than one million customers across Europe (2016: over 815,000 across Europe). DriveNow is currently available in 13 cities. Our ReachNow service in the USA counted more than 82,000 customers by the end of the year (2016: 38,000), and is available in three cities. The fleet for both programs currently comprises more than 6,000 vehicles in Europe, of which around 15% are purely electric BMW i3 vehicles. A further 1,300 vehicles are available in the USA. In fact DriveNow is one of the strongest drivers of electro mobility e.g. in Germany. To date, around 334,000 customers have driven some 16.4 million carbon-free kilometers using DriveNow’s BMW i3 electric vehicles. Inclusion: BMW Risk Management uses a comprehensive risk catalogue with experts of the risk categories responsible for validation of their risk categories. The risk catalogue also covers potential climate related risks and thus ensures that significant climate related risks are assessed, reported and validated in the BMW Group risk management process. In the internal risk catalogue climate-related risks of “downstream” are mostly included in the risk category “external/global environment; new regulations”. |

## **C2.2d**

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

Key climate change risks and opportunities (CCR&O), core to our business model, are related to products and services and production. Car manufacturers are in a transition phase. Worldwide inhomogeneous CO2-emission regulations are implemented and challenge car manufactures to adapt their products to meet these standards and at the same time client’s needs. Opportunities arise for new products such as PHEVs/BEVs or services. For production a major risk could arise from weather extremes such as extreme temperatures that could cause interruptions, e.g. due to water scarcity.

Risk management processes:

To mitigate risks from regulation and leverage opportunities for new products BMW Group’s Strategy unit is responsible for monitoring and further developing targets on vehicle fleet CO2-emissions to meet all regulatory requirements worldwide as well as to shape transformation with attractive, electrified products. These targets and corresponding measures together with an assessment of financial implications are aligned within the affected departments and discussed in the “product circle” (senior vice president level) and then brought to the board for decision. The “Complete Vehicle Architecture” unit within the R&D department coordinates the development and implementation of fuel-saving technologies in the individual vehicle projects to achieve the CO2-targets and to leverage business opportunities with new products and services. Like this e.g. the X3 BEV was decided to be introduced in 2020.

For production a major physical risk could arise from weather extremes such as extreme temperatures that could cause interruptions, e.g. due to water scarcity. To mitigate production risks and leverage opportunities BMW Group’s Strategy unit is developing measures with affected departments. Those are considered by the Sustainability Committee being part of the strategy circle (senior vice president level). Resulting strategic options and measures are put forward to the Sustainability Board for decision, which comprises the entire Board of Management. Specific examples are targets for resource efficiency (e.g. a 45% increase in energy or water efficiency from 2006 to 2020), targets for the use of renewable energies or implementation of environmental management systems in all sites worldwide.

Similar physical risks could arise in BMW Groups supply chain. Due to our global supplier network (about 4900 Tier 1 suppliers of production material and an exponentially increasing number of Tier n suppliers) supply shortages could arise in several regions worldwide and affect BMW Group sites. We apply a three step risk management and mitigation approach. 1. Identification and analysis of locations of potential high-risk suppliers using a risk filter (and further tools), media screening and an industry-wide questionnaire. 2. Execution of audits and assessments on the basis of the results of the industry-wide questionnaire as well as agreement on corrective measures (e.g. in case potential production material suppliers have not already implemented a certified environmental management system). 3. Review and certification of selected supplier locations using the industry-wide sustainability questionnaire, independent sustainability audits or BMW Group sustainability assessments, supplier training as well as performance monitoring of /engagement with key suppliers/supply chains (e.g. through CDPs supply chain program).

## **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?**

Customer

### **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 driver**

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

### **Company- specific description**

i) General Description: Emission regulations on a continental (e.g. EU) as well as national (e.g. Japan) level are implemented and challenge car manufactures to adapt their products to meet these standards (lower emission figures) over time. E.g., average new vehicle fleet targets in Europe: The EU CO2-Regulation allows a value of 130 gCO2/km since 2015, which is reduced to 95 gCO2/km for the year 2021. The possible risks occur through the heterogeneity of these regulations around the world and simultaneously increasingly stringent regulations. Due to political reasons the premium segment might be more affected than other segments. Further, the trend towards megacities and the overall traffic and emission situation within those cities will probably lead to a growing number of low emission zones in urban areas, in which only vehicles, that meet strict emission requirements, will be allowed to enter. For car manufacturers these regulatory risks may inhibit the need for significant short-term investments to avoid risks such as payments of penalties, losses in reputation or allowances to offer individual mobility at all (strict emission zones). (ii) Company specific: The risks from air pollution limits exist for all members of the automotive sector. BMW Group faces risks as provider of premium mobility: Regulators (e.g. in EU, USA, China) could propose uneven load distribution to meet regional fleet targets. BMW Group as premium manufacturer has to meet high quality and comfort demands of their customers. A deciding factor in achieving e.g. the 95g/km target of EU28 is the success of e-mobility. However, the framework conditions for e-mobility have not yet been solidified in the majorities of states and cities. The uncertainty of regulations regarding incentives for the accelerated introduction of alternative drive vehicles (granting super credits for fleet limits, user benefits in urban areas, taxation etc.) and the available charging infrastructure have major influence on the volatility of the e-mobility business case. As new business, the development of market shares for battery electric and plug-in hybrid electric vehicles are not yet easily predicted. The uncertainty about stronger limits in the future and the possibility of low emission zones with stricter limits constitutes a risk to the BMW Group.

### **Time horizon**

Medium-term

### **Likelihood**

Likely

### **Magnitude of impact**

Medium

### **Potential financial impact**

200000000

### **Explanation of financial impact**

Nearly all of our worldwide passenger car sales are affected by emission taxation and regulation. If the taxation or regulation is changed on a short notice (1-2 years) adversely to expectations it might result in a decrease of sales volume. Consequently benefits on continental or national levels might drop, resulting in an impact on the overall annual result. E.g., a drop in sales of 1% might have an estimated impact between 150 and 250 Mio. € Gross profit, depending on the models affected. The number for “Potential financial impact” provided is the average of that range.

### **Management method**

Action implemented) In order to cope with taxation schemes BMW Group invests into R&D to increase CO2-efficiency. CO2 management is included in the corporate strategy (target setting, monitoring) and the product development process (implementation of measures). Regulations are monitored on a regular basis. BMW Group anticipates uncertainty in future taxation systems by increasing the CO2 efficiency of its vehicles Since 2007 BMW Group’s Efficient Dynamics (ED) is a comprehensive technologic approach. It includes efficient dynamics technologies such as highly-efficient automobiles with gradually refined combustion engines, lightweight construction, improved aerodynamics and coordinated energy management as well as Plug-in hybrids and battery electric vehicles. Example) BMW Group invested major budgets € (2017: 6.1 billion € total R&D expenditures) in CO2-reduction technologies, e.g. about 200 Mio. € in ED technologies (part of the standard configuration) year by year since 2007. Actually (2017) 12V systems in smaller vehicles and 48V systems in medium and larger vehicles are under development which will in coming years lead to CO2 reduction of 5 to 7%. To reduce worldwide fleet emissions we also invest a significant share of the R&D expenditure in PHEV/BEV. In 2017 we launched e.g. the PHEV versions of the MINI Countryman & the BMW 5 series or worked on the BEV version of the MINI or the BMW X3. E.g. in EU28 we reduced fleet CO2-emissions by 42% between 1995 and 2017.

### **Cost of management**

6100000000

### **Comment**

BMW Groups R&D expenditures in 2017 were 6.1 billion €. Thereof we spent about 200 million € for ED technologies. We develop scalable modular electric construction kits to be able to fit all model series with any type of drivetrain. All our brands will gradually be electrified. Several models are under development, e.g. in 2019 a battery-electric MINI, in 2020 the first fully electric model from the core BMW brand, the X3, followed in 2021 by the iNEXT, our new technology flagship. In 2025 our portfolio will incorporate 25 electrified models (12 fully electrified) with an expected share of BEVs/PHEVs of 15-25%. Due to competitive advantage issues we are not able to give here exact numbers but state that electrification took a significant share of the 2017 R&D expenditure.

### **Identifier**

Risk 2

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

Customer

### **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 driver**

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

### **Company- specific description**

(i) General Description: Additional regulations focus on the taxation of the vehicles in the markets. Taxation is directly related to the total cost of ownership (TCO) for the customer. If the vehicles of a car manufacturer are especially negatively affected by an increased taxation scheme this will impact the purchase decision. (ii) Company Specific: The risks are sector specific, but possess an increased risk level for the BMW Group as premium car manufacturer (e.g. cars with larger engine sizes). If the BMW Group products are negatively affected by an increased taxation scheme this will impact the purchase decision. Examples for the BMW Group on vehicle level: the values of the French bonus/malus scheme valid in 2017 increased drastically when compared to previous years (e.g. The malus for a vehicle emitting more than 190 g CO2/km increased from 8.000 € in 2016 to 10.000€ in 2017). For the future we expect further tightening of such systems. In the future a couple of EU-markets focus their incentives on BEV and no longer on PHEVs (e.g. France, UK). In China, we expect further restrictions in vehicle registrations in Chinese megacities in the mid-term, which could reduce our planned sales volume up to 5 %. For the BMW Group the compliance with existing legislation and regulation is a basic requirement for the sale of vehicles and profitability of the company. The BMW Group specific risks regarding emission regulation have been minimized by BMW Groups anticipation of future limits and the implementation in the Efficient Dynamics strategy. This resulted in the actual product portfolio with highly efficient vehicles in the premium segment. Nevertheless the uncertainty about future tax schemes negatively affecting the BMW Group portfolio constitutes a risk to the BMW Group.

### **Time horizon**

Medium-term

### **Likelihood**

Likely

### **Magnitude of impact**

Medium-low

### **Potential financial impact**

200000000

### **Explanation of financial impact**

Nearly all of our worldwide vehicle sales are affected by emission taxation / regulation. If taxation is changed on a short notice (1-2 years) adversely to expectations it might result in a decrease of sales volume. Consequently benefits on continental or national levels might drop, resulting in an impact on the overall annual result. E.g., a drop in sales of 1% might have an estimated impact between 150 and 250 Mio. € Gross profit, depending on the models affected. The number provided for “Potential financial impact” is the average of that range.

### **Management method**

Action implemented) In order to cope with taxation schemes BMW Group invests into R&D to increase CO2-efficiency. CO2 management is included in the corporate strategy (target setting, monitoring) and the product development process (implementation of measures). Regulations are monitored on a regular basis. BMW Group anticipates uncertainty in future taxation systems by increasing the CO2 efficiency of its vehicles. Since 2007 BMW Group’s Efficient Dynamics (ED) is a comprehensive technologic approach. It includes efficient dynamics technologies such as highly-efficient automobiles with gradually refined combustion engines, lightweight construction, improved aerodynamics and coordinated energy management as well as Plug-in hybrids and battery electric vehicles. Example) BMW Group invested major budgets (2017: 6.1 billion € total R&D expenditures) in CO2-reduction technologies, e.g. about 200 Mio. € in ED technologies (part of the standard configuration) year by year since 2007. Actually (2017) 12V systems in smaller vehicles and 48V systems in medium and larger vehicles are under development which will in coming years lead to CO2 reduction of 5 to 7%. To reduce TCO through taxation further and offer solutions for access restrictions we also invest a significant share of the R&D expenditure in PHEV/BEV. In 2017 we launched e.g. the PHEV versions of the MINI Countryman & the BMW 5 series and worked on the BEV version of the MINI.

### **Cost of management**

6100000000

### **Comment**

BMW Groups R&D expenditures in 2017 were 6.1 billion €. Thereof we spent about 200 million € for ED technologies. We develop scalable modular electric construction kits to be able to fit all model series with any type of drivetrain. All our brands will gradually be electrified. Several models are under development, e.g. in 2019 a battery-electric MINI, in 2020 the first fully electric model from the core BMW brand, the X3, followed in 2021 by the iNEXT, our new technology flagship. In 2025 our portfolio will incorporate 25 electrified models (12 fully electrified) with an expected share of BEVs/PHEVs of 15-25%. Due to competitive advantage issues we are not able to give here exact numbers but state that electrification took a significant share of the 2017 R&D expenditure.

### **Identifier**

Risk 3

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

Direct operations

### **Risk type**

Physical risk

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

Acute: Increased severity of extreme weather events such as cyclones and floods

### **Type of financial impact driver**

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

### **Company- specific description**

(i) Clear Description: Climate change causes a higher frequency of temperature extremes and extreme weather events (e.g. floods, hail, tornados and hurricanes as well as temperature extremes). Those extremes may lead to damaged production sites, damaged transportation infrastructure or disruptions in production capacity due to affected energy structures or shortages in energy or water availabilities. (ii) Specific: Production sites of BMW Group in vulnerable regions are affected. This is for example of particular concern for the production sites in the USA (South Carolina), South Africa, India or Brazil as well as partner plants, e.g. in Egypt, Malaysia and Vietnam (e.g. temperature extremes and extreme dryness). These sites represent about 20% of the total BMW Group vehicle production volume. The BMW Group faced several damages due to extreme weather events in the last years. In succession BMW was under pressure to reproduce the ordered vehicles. A feasibility study was carried out for evaluation of natural risks (including extreme weather events) regarding all BMW productions sites worldwide. For example our production site in Spartanburg (U.S.) could be particularly affected by the higher frequency of tornados.

### **Time horizon**

Short-term

### **Likelihood**

Very unlikely

### **Magnitude of impact**

High

### **Potential financial impact**

8000000000

### **Explanation of financial impact**

These vary widely with the degree of damage. E.g. a tornado could damage plant Spartanburg (USA) and cause a breakdown of production up to 12 months. This would represent a damage in the amount of up to 8 billion €. However, due to our flexible production system we can shift volumes between plants and/or we can catch up lost volumes in the affected plant itself. In combination with our worldwide insurance solution possible financial implications can be reduced to a large extend.

### **Management method**

Actions implemented) BMW Group uses a tailor-made natural catastrophes risk analysis tool. Depending on the individual vulnerability, the exact geographical position and elevation all relative risks (in %) are analyzed for hazards like flood, storm, extreme temperatures etc. On basis of individual risk parameters each existing or potential new location is analyzed and mitigation measures are defined and taken. Insurances cover relevant remaining risks. Complementary we increase energy or water efficiency in our production network to increase resource independency. Examples) Specific analyzing tools include a site selection tool. All results are considered for choosing new locations and defining mitigation measures. Vulnerability to direct physical climate risks are evaluated at 100% of production sites and preparedness plans exist. E.g. in the planning of our new plants in Brazil and Mexico, risks of flooding after hard rain are included. E.g., for Spartanburg, a plan to minimize damages in case of extreme weathers exists. Employees at the site are responsible to implement it when warning is delivered and to remove vehicles from the danger zone. For remaining risks tailor-made insurance contracts covering risks at BMW Group locations worldwide were effected. Furthermore we increased resource efficiency in vehicle production. Since 2006 we reduced energy consumption per vehicle produced by 36.5% and water consumption by 31.9%. Our target is a 45% reduction until 2020.

### **Cost of management**

160000000

### **Comment**

In 2017 insurance premiums for BMW Group locations including the production facilities and supply chain interruptions were below 40 Mio. €. The costs associated with the maintenance and continuous improvement of the site selection tool were about 20,000 € in 2017. In addition BMW Group Corporate Insurance has own Risk Engineers analyzing the risk situation for high-risk locations on site with personnel costs of several 100.000€ per year. Reducing the dependency on natural resources is part of the BMW group wide sustainability programme. Specific allocated costs are directed both to higher resource efficiency and renewable energy generation facilities in the amount of approximately 119 million € in 2017. These include all of the activities described such as improved energy-, water- or CO2-efficiency. The total costs thus amount to approx. 160 Mio. €.

### **Identifier**

Risk 4

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

Supply chain

### **Risk type**

Physical risk

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

Acute: Increased severity of extreme weather events such as cyclones and floods

### **Type of financial impact driver**

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

### **Company- specific description**

(i) Clear Description: Climate change causes a higher frequency of temperature extremes and extreme weather events (e.g. floods, hail and hurricanes). Those extremes may lead to damaged supply plants, which in turn may lead to supply chain interruptions and thus shortages in supply for BMW Group. (ii) Specific: BMW’s supply chain in vulnerable regions is affected by changes in physical climate parameters. BMW Group production sites are supplied with production materials from local suppliers as well as from suppliers located all over the world. E.g. local suppliers of our site in Spartanburg (South Carolina) could be affected by a tornado with corresponding interruptions in material supply. In a similar way other sites in the BMW Group production network could be affected by supply chain interruptions from suppliers located in vulnerable regions of the world. Depending on the importance and substitutability of a certain component, malfunctions of the supply chain for a single part can lead to failures or even loss of production at BMW production sites. Similar to the events in Japan in 2011, incidents induced by climate change can lead to immense shortfalls of supply. As potential consequence operation of one or more BMW Group production sites must stop, e.g. one week breakdown could have a negative impact of up to 300 Mio. € Gross profit.

### **Time horizon**

Short-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

Medium-low

### **Potential financial impact**

300000000

### **Explanation of financial impact**

Climate change causes a higher frequency of temperature extremes and extreme weather events (e.g. draughts, floods) which could lead to supply chain interruptions. As potential consequence operation of one or more BMW Group production sites must stop, e.g. one week breakdown could have a negative impact of up to 300 Mio. € Gross profit.

### **Management method**

Actions implemented) BMW Group uses a tailor-made natural catastrophes risk analysis tool to evaluate supplier sites. Risks are analyzed for hazards like flood, storm etc. On basis of individual risk parameters each (own and supplier) location worldwide can be analyzed. A clear internal process was introduced. Fall backs and contingency plans have been developed. Insurances cover relevant remaining risks. Examples) Specific analyzing tools are used, e.g. a site selection tool. All results are considered for choosing specific suppliers /supplier locations and to define mitigation measures with suppliers. To minimize shortages production locations of our suppliers are considered before entering into contracts. The purchasing department has developed fall back and contingency plans in case of a shortfall of critical parts. We keep our production structure flexible (locations and working schemes) to respond to business interruptions caused by physical climate drivers. E.g. if the X3 production in Spartanburg would be shut down due to a local supplier we can shift volumes to plant Rosslyn (South Africa) or catch up lost volumes in Spartanburg itself. For protection of remaining risks tailor- made insurance contracts covering risks caused by interruptions of the supply chain have been developed. The terms of the insurance contracts are “state-of-the-art” but a guarantee that each and every claim is covered is not possible.

### **Cost of management**

40000000

### **Comment**

In 2017 Insurance premiums for supply chain interruptions and BMW Group locations including the production facilities were below 40 Mio. €. Some FTEs in the purchasing department analyze and manage supply chain risks from sustainability issues and climate change with personnel costs in the order of magnitude of 1 Mio. € per year.

### **Identifier**

Risk 5

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

Supply chain

### **Risk type**

Physical risk

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

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

### **Type of financial impact driver**

Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)

### **Company- specific description**

(i) Clear Description: Changes in physical climate parameters can induce changes in natural resources and therefore the availability of input materials. (ii) Specific: The availability of input materials for BMW’s suppliers such as water and energy can decrease. As a consequence, the price for these goods could rise and impose additional costs to BMW’s suppliers and in consequence to BMW Group. Energy is a significant input factor for BMW Groups supply chain. Life cycle assessments show that the energy needs in the whole BMW Group supply chain for vehicle production are about 80,000,000 MWh in 2017. If the energy costs increase e.g. in average by 2-5% in the whole supply chain, additional costs could be up to 200 million €.

### **Time horizon**

Short-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

Medium-low

### **Potential financial impact**

200000000

### **Explanation of financial impact**

Changes in physical climate parameters can induce changes in the availability of natural resources. The price of water and energy can increase. If the risk materializes via suppliers and would increase in average the energy costs in the whole supply chain in the magnitude 2-5%, this would represent an increase of purchasing costs of up to 200 million €.

### **Management method**

Actions implemented) Risks of scarcity of natural resources are most directly tackled by maximizing resource efficiency in the supply chain and jointly developing solutions, e.g. for re-using and recycling materials. Examples) Resource efficiency is accessed e.g. via the CDP supply chain programme (over 77% of production-relevant procurement volume in 2017), identified potentials are addressed/improvements are discussed on top management level in supplier performance reviews. We support shared learning within our supply chain, e.g. through our forum “Learning from the Supplier”, where suppliers are asked to present best-practice case studies. Our Supplier Innovation Awards further incentivize especially innovative supplier achievements. Trainings on climate change risks/natural hazards raise awareness among the purchasers and suppliers. Further, we require the use of recycled/renewable materials and innovative production methods within our supply chain. Life Cycle Engineering helps us carry through our vision of achieving a substantial improvement from one vehicle generation to the next. E.g. targets for the share of recycled materials are set at the beginning of vehicle development to support circular economy, CO2- as well as cost-efficiency. E.g. up to 20% of the thermoplastic materials in our vehicles are now made from recirculates and high-strength cast aluminum parts consist of up to 50% of secondary aluminum.

### **Cost of management**

10000000

### **Comment**

Specific allocated costs are directed to increase transparency through the CDP supply chain programme as starting point for resource efficiency measures in the amount of approximately 30,000€ in 2017. The yearly Supplier Innovation Awards with total costs above 1 Mio. incentivizes supplier innovations including innovations to reduce CO2 emissions of our products as well as in production. Furthermore administrative expenses (ca. 3,393 million € in 2017) comprise several full time employees dedicated to sustainability and climate change in the purchase department as well as in the development department. The total costs thus amount to approx. 10 Mio. €.

## **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?**

Customer

### **Opportunity type**

Products and services

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

Development and/or expansion of low emission goods and services

### **Type of financial impact driver**

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

### **Company- specific description**

(i) Clear Description: The automobile industry is highly affected by future standards and regulations. Especially manufacturers who implemented sustainability strategies at a later stage possibly face high development costs to fulfil future requirements. In contrast early adapters may earn a premium on relatively lower running development costs but also might be able to profit from higher sales due to an earlier penetration of the market. (ii) Specific: As a result of our Efficient Dynamics strategy launched already in 2000 the BMW Group fulfils all relevant requirements from standards and regulation and is in good position in comparison to other premium manufacturers. This position provides an important opportunity to the company as it is key to the fulfillment of international agreements, air pollution limits, product efficiency regulation, etc. The Efficient Dynamics strategy is one reason why the BMW Group had its 7th record year in a row in 2017. In 2017 sales volume increased by 4.1% when compared to 2016. One relevant contribution is a 65.6% increase in sales volume of plug-in hybrid electric vehicles (PHEV) and battery electric vehicles (BEV). We sold 103,080 PHEV and BEV worldwide. In Europe BMW Group leads the market for PHEV and BEV and has a 21% market share. This in turn forms the basis for continuing to invest, e.g. in further efficiency measures, new products and e-mobility to address proactively future regulatory requirements. We aim to sell more than 140,000 electrified vehicles in 2018 and have half a million electrified BMWs and MINIs on the roads by the end of 2019.In 2025 we expect a 15-25% share of BEVs and PHEVs. Therefore BMW Group will be able to handle future requirements and maintain a competitive advantage in terms of regulatory requirements.

### **Time horizon**

Medium-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

Medium-low

### **Potential financial impact**

200000000

### **Explanation of financial impact**

It is difficult to estimate the financial implications of this opportunity as we cannot foresee the constantly changing regulations for our relevant markets and the impact of changing customer needs. Based on historical information about our customers’ behavior regarding technological changes we expect a rise in future sales. Compared to competitors we had a rise in sales due to our efficient dynamics strategy of at least 1% corresponding to approximately 150 to 250 Mio. € Gross profit annually, depending on the vehicles affected. The number provided for “Potential financial impact” is the average of that range.

### **Strategy to realize opportunity**

Action implemented) A competitive advantage is the result of anticipating regulation and changing customer demands in the innovation management. BMW Group invests into R&D to increase CO2-efficiency. CO2 management is included in the corporate strategy (target setting, monitoring) and the product development process (implementation of measures). In 2000 BMW Group adopted the Efficient Dynamics (ED) strategy, ED technologies includes highly-efficient combustion engines, lightweight construction, improved aerodynamics and coordinated energy management. We offer Plug-in hybrids and battery electric vehicles, starting with the BMW i3 in 2013. Example) Example) BMW Group invested major budgets (2017: 6.1 billion € total R&D expenditures) in CO2-reduction technologies, e.g. about 200 Mio. € in ED technologies (part of the standard configuration) year by year since 2007. Actually (2017) 12V systems in smaller vehicles and 48V systems in medium and larger vehicles are under development which will in coming years lead to CO2 reduction of 5 to 7%. To reduce worldwide fleet emissions we also invest a significant share of the R&D expenditure in PHEV/BEV. In 2017 we launched e.g. the PHEV versions of the MINI Countryman and the BMW 5 series and worked on the BEV version of the MINI or the BMW X3. E.g. in EU28 we reduced fleet CO2-emissions by 42% between 1995 and 2017.

### **Cost to realize opportunity**

6100000000

### **Comment**

BMW Groups R&D expenditures in 2017 were 6.1 billion €. Thereof we spend about 200 million € for ED technologies. We develop scalable modular electric construction kits to be able to fit all model series with any type of drivetrain. All our brands will gradually be electrified. Several models are under development, e.g. in 2019 a battery-electric MINI, in 2020 the first fully electric model from the core BMW brand, the X3, followed in 2021 by the iNEXT, our new technology flagship. In 2025 our portfolio will incorporate 25 electrified models (12 fully electrified) with an expected share of BEVs/PHEVs of 15-25%. Due to competitive advantage issues we are not able to give here exact numbers but state that electrification took a significant share of the 2017 R&D expenditure.

### **Identifier**

Opp2

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

Customer

### **Opportunity type**

Products and services

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

Development and/or expansion of low emission goods and services

### **Type of financial impact driver**

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

### **Company- specific description**

(i) Clear Description: Carbon Taxes impose higher costs for car pool owners. Consequently car pool owners could decide to switch to new and more efficient cars. The switch to new and more efficient cars provides opportunities for manufacturers of these cars. E.g., the values of the French bonus/malus scheme valid in 2017 increased drastically when compared to previous years (e.g. The malus for a vehicle emitting more than 190 g CO2/km increased from 8.000 € in 2016 to 10.000€ in 2017). For the future we expect further tightening of such systems. (ii) Specific: A major market of the BMW Group is the management of car fleets. Due to the Efficient Dynamics strategy, BMW Group implemented fuel efficiency technology packages in the standard configuration in all vehicles and launched the BMW i3 & i8, the BMW X5 xDrive40e respectively the 2 / 3 / 5 / 7 series models with plug-in-hybrid powertrain. The success of the strategy leads us, in comparison to other premium manufacturers, to a comfortable position. The switch of customers to new and more efficient cars provides opportunities for BMW Group. Due to the broad range of efficient fleet cars as well as PHEV and e-vehicle offerings BMW Group is likely to be a beneficiary of the described process. E.g. in Europe BMW Group is with a share of 21% of electrified vehicles market leader.

### **Time horizon**

Medium-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

Low

### **Potential financial impact**

80000000

### **Explanation of financial impact**

BMW Group provides financing for fleet customers and fleet management under the brand “Alphabet” in 19 countries. The financial impact is given by higher sales due to competitive advantage from an increased fuel and carbon efficiency and decreased total cost of ownership. Sales increase, including effects from our competitive positioning in fuel efficiency, is about 80 million € annually. This is reflected e.g. by a 5.5% increase in the number of fleet contracts for BMW Group vehicles during the financial year 2017,

### **Strategy to realize opportunity**

Action implemented) Early identification of changing consumer behavior and the development of CO2-efficient products were essential to gain a competitive advantage with fleet customers being ownership cost and CO2-emission aware clients. BMW Group invests into R&D to increase CO2-efficiency. CO2 management is included in the corporate strategy (target setting, monitoring) and the product development process (implementation of measures). ED technologies includes highly-efficient combustion engines, lightweight construction, improved aerodynamics and coordinated energy management. We offer Plug-in hybrids and battery electric vehicles, starting with the BMW i3 in 2013. Examples) Direct injection in combination with variable valve control in all 3/4/6/8/12 cylinder gasoline engines lead to high CO2 efficiency. We introduced 3 cylinder diesels in the premium segment with significant friction loss reductions when compared to 4 cylinder engines. We offer Auto Start Stop on a broad basis. We offer plug-in hybrid drivetrains for the 2, 3, 5, 7 Series, the X5 and the MINI Countryman as well as in the BMW i8 and as BEV the BMW i3. We are leading e.g. the market for electrified vehicles in Europe. E.g. in EU28 we reduced fleet CO2-emissions by 42% between 1995 and 2017. Alphabet offers BMW i3 as well as e.g. the 2, 3, 5 or 7 series models with plug-in- drivetrains to customers and introduced these vehicles into the Corporate Car Sharing offer AlphaCity.

### **Cost to realize opportunity**

6100000000

### **Comment**

BMW Groups R&D expenditures in 2017 were 6.1 billion €. Thereof we spend about 200 million € for ED technologies. We develop scalable modular electric construction kits to be able to fit all model series with any type of drivetrain. All our brands will gradually be electrified. Several models are under development, e.g. in 2019 a battery-electric MINI, in 2020 the first fully electric model from the core BMW brand, the X3, followed in 2021 by the iNEXT. Another share of R&D expenses include further development of extra equipment such as the car-sharing module (control unit for vehicle access control, starting permission or monitoring) and vehicle integration to introduce new models into the AlphaCity fleet. Due to competitive advantage issues we are not able to give here exact numbers but state that electrification took a significant share of the 2017 R&D expenditure.

### **Identifier**

Opp3

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

Customer

### **Opportunity type**

Products and services

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

Shift in consumer preferences

### **Type of financial impact driver**

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

### **Company- specific description**

(i) Clear Description: Changes in consumer behavior may occur due to rising consumer awareness on the subject of sustainability including climate change and rising costs for fuel use (fuel price, carbon taxes, and city tolls). Consumers with higher preferences for ecology and cost-efficiency may shift the focus on the CO2-efficiency of products as well as the ecological reputation of the company offering the products. The shift of focus towards CO2 efficiency and sustainability provide opportunities (e.g. increased sales and new customers) for car manufactures with respective technologies and reputation. (ii) Specific: Particularly in the premium car sector the effect of brand reputation is essential. BMW Group offers CO2-efficient cars and is sector leader in various key performance indicators regarding the sustainability of its production. We have been introducing consumption- and emissions-reducing technologies with the technology package "Efficient Dynamics". Our progress in this field is receiving recognition from customers and has thereby given the BMW Group a competitive edge, particularly in markets where a CO2-based vehicle tax is in place as in many countries of EU28. This is e.g. reflected by our market leadership in Europe for plug-in hybrid vehicles (PHEV) and battery electric vehicles (BEV) where we have a 21% market share. Furthermore services improving the eco-efficiency of driving, such as traffic intensity monitoring or the choice of drive modes such as EcoPro or applications easing the interconnection with other mobility services as public trains, can improve the ecological footprint of the customer. Therefore changing consumer behavior offers opportunities for the BMW Group (e.g. increased sales and new customers). An additional profitable line has been created by offering innovative mobility services. More than 23 million customers used our mobility services in 2017. E.g. our premium car-sharing services DriveNow & ReachNow already has over a million customers. Through acquisition of Parkmobile LLC we are now the largest provider of mobile parking services in North America and Europe, with 22 million customers in 1,000 cities. BMW Group plans to sustain that competitive advantage and further explore the described opportunities in the future.

### **Time horizon**

Medium-term

### **Likelihood**

More likely than not

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

200000000

### **Explanation of financial impact**

The BMW Group has early established a competitive advantage in the segment of premium cars based on Efficient Dynamics. Information about customer behavior regarding technological changes points to a rise in future sales. Compared to competitors our sales rose due to our Efficient Dynamics strategy by at least 1% corresponding to approximately 150 to 250 Mio. € Gross profit annually, depending on the vehicles affected. New forthcoming technical features may lead to a further rise of that figure. The number for “Potential financial impact” provided is the average of that range.

### **Strategy to realize opportunity**

Actions implemented) With rising fuel prices & awareness of ecologic issues BMW Group can profit from a change of consumer demand by investing in fuel efficient products and services. The achievements in fuel-efficiency have given us a competitive advantage. The efficient dynamics (ED) strategy addresses CO2 efficiency in our vehicles. Our mobility services such as our car sharing offers DriveNow and ReachNow or connectivity services such as real time traffic information or ParkNow (helping drivers to find free parking places) are key areas to address changing customer needs. Examples: (1) ED technologies: Direct injection in combination with variable valve control in all 3/4/6/8/12 cylinder gasoline engines lead to high CO2 efficiency. We offer Auto Start Stop on a broad basis. (2) We offer plug-in hybrid drivetrains for the 2, 3, 5, 7 Series, the X5 and the MINI Countryman as well as in the BMW i8 and as BEV the BMW i3. We are leading e.g. the market for electrified vehicles in Europe. (3) Services: More than 23 million customers used our mobility services in 2017. E.g. our premium car-sharing services DriveNow & ReachNow already has over a million customers. Through acquisition of Parkmobile LLC we are now the largest provider of mobile parking services in North America and Europe, with 22 million customers in 1,000 cities. With the investment fund BMW i Ventures we invest in start-ups in areas like mobility services and e-mobility.

### **Cost to realize opportunity**

6100000000

### **Comment**

BMW Groups R&D expenditures in 2017 were 6.1 billion €. Thereof we spend about 200 million € for ED technologies. All our brands will gradually be electrified. Several models are under development, e.g. in 2019 a battery-electric MINI, in 2020 the first fully electric model from the core BMW brand, the X3. Another share of R&D expenses include e.g. further development of extra equipment such as the car-sharing module (control unit for vehicle access control, starting permission or monitoring) and vehicle integration to introduce new models into the DriveNow fleet as well as e.g. the IT infrastructure to run BMW Group services. Due to competitive advantage issues we are not able to give here exact numbers but state that electrification took a significant share of the 2017 R&D expenditure. Furthermore, BMW i Ventures has €500 million venture capital, part of it being already invested in start-ups.

### **Identifier**

Opp4

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

Direct operations

### **Opportunity type**

Markets

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

Other

### **Type of financial impact driver**

Other, please specify (Increased capital availability)

### **Company- specific description**

(i) Clear Description: The number of sustainable investment funds operating in Europe and US is growing. Private investors look upon sustainability ratings as indicator for future performance and therefore may grant credits at lower interest rates. Companies with a good sustainability rating could therefore profit from those lower interest rates and have a competitive advantage against other companies. (ii) Specific: Many ratings and awards attest the BMW Group to be the most sustainable car manufacturer. Efficient technologies, solutions for sustainable mobility, and clean production are just some of the aspects that ensure the leading role of the BMW Group regarding sustainability. Market research and media analyses show that the corporate image of the BMW Group is influenced very positively by its sustainability performance, thus increasing its attractiveness for potential investors. The reputation is directly influencing our credit rating and thus our funding costs for the financial service business. Moodyʼs has upgraded BMW AGʼs long-term rating to A1. Our company also has the highest Standard & Poorʼs rating of any European automobile manufacturer. We are leading since many years the sustainability ratings CDP and DJSI. E.g. in 2017, the BMW Group was the only German automobile manufacturer to be listed once again in the Dow Jones Sustainability Indexes (DJSI) “World” and “Europe” and is the only company in the automotive industry worldwide that has been continuously listed on the index since the very beginning.

### **Time horizon**

Current

### **Likelihood**

Likely

### **Magnitude of impact**

Medium

### **Potential financial impact**

85000000

### **Explanation of financial impact**

Our excellent sustainability reputation is directly influencing our credit rating and thus our funding costs for the financial service business (e.g.: a potential advantage for 2017 could be -0,10%-points interest rate relative to our competitors, which equals approximately 85 million € income).

### **Strategy to realize opportunity**

Action implemented) Ecological reputation relies on the ecological performance of BMW Group and its products. Among other objectives, to maintain BMW’s good reputation regarding sustainability we invest in efficient technologies, solutions for sustainable mobility and clean production. Accompanying sustainability performance communications are essential to keep investors informed about progress. Examples) Basis for our reputation as most sustainable premium car brand are the results achieved in product and production efficiency. BMW efficient dynamics technologies and our broad range of PHEV in our main product lines and BEV (2017: 103,080 PHEVs/BEVs sold) as well as mobility services add to the substances behind our reputation. In a similar way contributes our “Clean Production” approach to reduce negative impacts on the environment. Here e.g. our target is to reduce the consumption of resources and emission levels per vehicle produced by 45 % from 2006 to 2020. BMW Group further improves its image and reputation by transparent communication, fulfilling legislation and by building up trust and confidence with stakeholders. We regularly inform investors about our environmental performance, e.g. through the “Sustainable Value Report”, ratings as the DJSI and CDP and during investor relation meetings and conferences. Several full time employees focus on the further advancement of sustainability performance and the aforementioned aspects of sustainability communications.

### **Cost to realize opportunity**

3393000000

### **Comment**

Administrative expenses (3,393 million € in 2017) comprise full time employees dedicated to sustainability, including approx. 100,000€ for FTE dedicated to „investor roadshows“ and „sustainability in Investor relations“. We already mentioned several times BMW Groups R&D expenditures in 2017 which were 6.1 billion €. Thereof we spend about 200 million € for ED technologies and a big share for electrification. BMW i investments include well above 800 Mio. € for sustainable production until 2017. Specific “Clean Production” costs for resource efficiency and renewable energy generation were about 119 Mio. € in 2017.

## **C2.5**

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

|  |  |  |
| --- | --- | --- |
|  | **Impact** | **Description** |
| Products and services | Impacted | Description: Our products and services are impacted by climate change related opportunities in the areas of electro mobility, mobility services and efficiency technologies. Electro mobility is one of the central topics of the future when it comes to making urban living and traffic sustainable. E-vehicles have zero local emissions, along with the potential of significantly reducing the emission of CO2 and air pollutants over the whole product life cycle, while also markedly reducing traffic noise in cities. The BMW Group develops electric vehicles that combine the advantages of sustainable mobility with a new driving experience for customers. We offer plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman. In 2019 we will launch a Battery Electric Vehicle (BEV) version of the MINI and in 2020 of the BMW X3. This means electric drivetrain offers for many high volume models. In 2017 the BMW Group sold 103,080 electrified vehicles worldwide (BEVs: 31,482; PHEVs: 71,598). The company led e.g. in the reporting year the market for electrified vehicles in Europe with a market share of 21%. We aim to sell more than 140,000 electrified vehicles in 2018 and have half a million electrified BMWs and MINIs on the roads by the end of 2019.In 2025 we expect a 15-25% share of BEVs and PHEVs. Mobility services enable sustainable mobility patterns as well as connected and automated vehicles. BMW Group wants to enable efficient and resource-saving traffic and is continuously developing its mobility services with this aim in mind. This includes our car-sharing services DriveNow and ReachNow (on-demand mobility services) with over 1 Mio. users worldwide, our digital parking service ParkNow and digital networking BMW Connected Services. We are also conveying the benefits of our mobility services in pilot projects in selected cities to improve quality of life in these. Magnitude of Impact: Because of these developments the impact is high. |
| Supply chain and/or value chain | Impacted | Description: All supplier sites (2017: 11,994) are evaluated with our sustainability risk filter. All direct suppliers (production material), about 4.900 in 2017, and indirect suppliers with relevant contract volumes have to fill out a sustainability questionnaire. Each potential new supplier must consider the BMW Group sustainability requirements in their quotation. This is a key decision-making indicator in the procurement process. If they don’t fulfill key requirements they will not be nominated as a supplier. One key contractually fixed compliance demand is to establish and maintain a certified Environmental Management System (EMS) in accordance with ISO 14001. Energy consumption and CO2 emissions are key impact categories and so energy- and CO2-efficiency have to be key improvement targets. In 2017 sustainability deficits (e.g. lack of environmental policy / management system) were identified at 2,885 potential and existing supplier locations and corrective measures were defined for 1,747. This is one way we influence improvement in our supply chain and mitigate climate related risks. BMW Group uses a tailor-made natural catastrophes risk analysis tool to evaluate supplier sites. Risks are analyzed for hazards like flood, storm or droughts etc. All results are considered for choosing specific suppliers /supplier locations and to define appropriate adaption and mitigation measures with suppliers. We participate in the CDP supply chain. This increases the level of transparency with regards to resource efficiency in the supply chain and acts as a basis for developing approaches for increasingly efficient handling of resources together with our suppliers. Within a cooperative approach we aim that 60% of our suppliers participating in the CDP Supply Chain Programme have at least a B rating in the CDP scoring system by 2020. One focus of our engagement is with suppliers of our high voltage battery cells. Depending on the size of the battery pack the contribution to the CO2-emissions in production of BEV could be up to 50%. We agree with our suppliers on specific measures to increase energy efficiency, use of renewable energies as well as use of recycled material. Magnitude of Impact: Because of these activities the impact is high. |
| Adaptation and mitigation activities | Impacted | Description: Our clean production philosophy contributes to the global adoption and mitigation efforts by reducing environmental impacts of the production and the procurement. Risks as higher prices for CO2-emissions (e.g. through trading schemes) further motivate our efforts to maximize resource efficiency and increase the use of renewable energy. To improve global adoption and mitigation we continue reducing CO2 through further increase of energy efficiency, utilization of combined heat and power plants (CHP) and increase of the share of energy from renewable sources. We reduced energy consumption per vehicle produced by 36.5%, CO2-emissions per vehicle produced by 61.0%, and water consumed per vehicle produced by 31.9%, all between 2006 and 2017. To counter direct physical impacts we take measures, e.g. include vulnerability risks in planning of new production sites. For suppliers we assessed sustainability risks at 4,886 nominated and potential locations of suppliers and sub-suppliers (2016: 4,112). Our focus is on suppliers with a large tendering volume. Sustainability deficits (e.g. lack of environmental policy / management system) were identified at 2,885 potential and existing supplier locations and corrective measures were defined for 1,747. BMW Group uses a tailor-made natural catastrophes risk analysis tool, also to evaluate supplier sites. Depending on the vulnerability of the goods on the site, the geographical position and elevation all relative risks (in %) will be analyzed for hazards like flood, storm or droughts etc. On basis of individual risk parameters each (own and supplier) location worldwide can be analyzed in detail. A clear internal process regarding the analysis was introduced. All results are considered for choosing specific suppliers /supplier locations and to define appropriate adaption and mitigation measures with suppliers. Magnitude of Impact: low to high, dependent on the specific locations. |
| Investment in R&D | Impacted | Description: Climate change is influencing our industry with the need to decrease emissions and the trend to electro mobility and mobility services. R&D is therefore of key importance for the BMW Group as a premium provider within the transformation of the industry. With its Strategy NUMBER ONE > NEXT, the BMW Group is focusing on the topics of electric mobility, digitalization and autonomous driving. A total of 14,047 people at 16 locations in five countries worked in the BMW Group’s global R&D network at 31 December 2017. R&D expenditure rose significantly year-on-year to € 6,108 million (2016: € 5,164 million; + 18.3 %). For 2018 we expect a further increase of R&D expenditures. One key development direction of the BMW Group is focusing its efforts on building a broad drive technology base so that in the coming years BMW Group can offer innovative solutions for the different mobility needs of our customers worldwide. With the BMW iNext in 2021, we will be introducing the fifth generation of our electric drive, which will be available as a scalable modular assembly unit. This uncouples the vehicle architecture from the drivetrain technology, meaning that every model can be fitted with a conventional, electric or hybrid drive as required and cars with different drivetrains can be produced at the same production sites. Another key development direction relates to individual mobility services. An example are our car sharing services DriveNow and ReachNow. DriveNow is one of the strongest drivers of electro mobility in Germany. To date, around 334,000 customers have driven some 16.4 million carbon-free kilometers using DriveNow’s BMW i3 electric vehicles. Magnitude of Impact: Due to these activities the magnitude is high. |
| Operations | Impacted | Description: Our company is facing the challenge of conserving resources and tackling climate change. This is also very relevant for our production processes. For this reason, we continuously increase our energy and resource efficiency and minimize CO2 and pollutant emissions from our production. In addition, these measures help us reduce production costs, meet the needs of our stakeholders and prepare for new legal requirements. We have established environmental management systems at all of our existing production plants and plan to install them at all future locations. We continuously work on improving our resource efficiency in order to achieve a 45% improvement by 2020, taking 2006 as a base year. In order to reduce energy consumption as well as CO2 and VOC emissions, we optimize processes and invest in more efficient technologies. We also rely on optimized processes and state-of-the-art technology to reduce our water consumption as well as waste and waste water. Since 2006, in vehicle production the BMW Group has reduced its energy consumption per vehicle by 36.5% and its water consumption by 31.9%. CO2 emissions per vehicle produced were reduced by 61.0%. In 2017 all of our production locations in Europe draw their electricity exclusively from renewable sources. Over the next few years, we will see different types of drivetrains on the roads. We are preparing our sites for this diversity by creating flexible architectures and plants. This will allow us to produce models with efficient combustion engines alongside electric vehicles and plug-in hybrids. From 2020 on, the use of scalable modular electric construction kits will enable us to fit all model series with any type of drivetrain. This will make us extremely flexible, whichever way demand develops. Magnitude of Impact: Due to this activities the impact is high. |
| Other, please specify | Please select |  |

## **C2.6**

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

|  |  |  |
| --- | --- | --- |
|  | **Relevance** | **Description** |
| Revenues | Impacted | Description: In the BMW Group, the drive for sustainable mobility pushes us to develop innovative technologies with direct impact on our revenues. We set ourselves ambitious goals for increasing the efficiency of our drivetrain systems as well as to develop battery electric vehicles and Plug-In electric vehicles and like this reducing CO2-emissions. Since 2007, Efficient Dynamics technologies are standard. These include efficient engines/ gearboxes, optimized aerodynamics, intelligent energy management, light-weight design, tires with reduced rolling resistance, energy recovery, ECO PRO driving mode, active coasting and proactive driving assistant or Auto Start Stop function. We offer connectivity services e.g. to find the fastest or the most efficient routes and simplify the search for a parking place. We offer plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman. In 2019 we will launch an all-electric powertrain version of the MINI and in 2020 of the BMW X3. This means electric drivetrains for many high volume models. We started with the BMW i3 and i8 and expect a 15-25% share of BEVs / PHEVs in 2025. In 2017 we sold 103,080 electrified vehicles BEVs respectively PHEVs contributing to the BMW Group revenues. In fact, BMW Group has in this fast growing segment already a much larger market share than in traditional drivetrains. We are leading for example the market for electrified vehicles in Europe with a market share of 21%. The competitive edge achieved through this is one of the reasons why the BMW Group had its seventh consecutive record year of sales in 2017 globally. This shows the impact on our revenues. Magnitude of Impact: Because of this worldwide drive to sustainable mobility the impact on revenues is high. |
| Operating costs | Impacted | Description: Our company is facing the challenge of conserving resources and tackling climate change. This is also very relevant for our production processes. For this reason, we continuously increase our energy and resource efficiency and minimize CO2 and pollutant emissions from our production in our worldwide production network. These measures help us reduce production costs and prepare for new legal requirements. Like this climate change is a driving force for efficiency increase and therefore cost savings. The BMW Group target is to reduce its resource consumption (energy, water, waste, solvents) per vehicle produced by 45% by 2020 (base year 2006). Since 2006, in vehicle production, the BMW Group has reduced its energy consumption per vehicle by 36.5% and its water consumption by 31.9%. CO2 emissions per vehicle produced were reduced by 61.0%. Magnitude of Impact: Since 2006, due to our efficient use of resources and here in particular energy, we made cost savings totaling € 161 million which is a low impact on our operating costs. |
| Capital expenditures / capital allocation | Impacted | Description: A major factor in the success of the BMW Group is its consistent focus on the future. Shaping individual mobility and finding innovative solutions today for the needs of tomorrow is a key driving force for the BMW Group. Research and development (R&D) is therefore of key importance for the BMW Group as a premium provider. Capital allocation to R&D rose significantly year-on-year to € 6,108 million in 2017 (2016: € 5,164 million; + 18.3 %). A significant share of the R&D expenditures is spend for electrification of the product range across all brands. We offer plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman. In 2019 we will launch Battery Electric Vehicle (BEV) version of the MINI and in 2020 of the BMW X3. This means electric drivetrain offers for many high volume models. In 2017 the BMW Group sold 103,080 electrified vehicles worldwide (BEVs: 31,482; PHEVs: 71,598). The company led e.g. in the reporting year the market for electrified vehicles in Europe with a market share of 21%. We aim to sell more than 140,000 electrified vehicles in 2018 and have half a million electrified BMWs and MINIs on the roads by the end of 2019. In 2025 we expect a 15-25% share of BEVs and PHEVs. Over the next few years, we will see different types of drivetrains on the roads. A high level of capital expenditures are for preparing our sites for this diversity by creating flexible architectures and plants. This will allow us to produce models with efficient combustion engines alongside electric vehicles and plug-in hybrids. From 2020 on, the use of scalable modular electric construction kits will enable us to fit all model series with any type of drivetrain. This will make us extremely flexible, whichever way demand develops. Magnitude of Impact: Because of these significant expenditures the impact is high. |
| Acquisitions and divestments | Impacted | Description: Climate change is a driving force for transformation of the automotive industry. Electrification is a priority area in BMW Groups Strategy NUMBER ONE > NEXT, which provides us with a strategic roadmap up to 2025. China is the world’s largest market for electro mobility. Following our successful strategy for expansion of the BMW Group’s global production network which is production follows the market the BMW Group is in advanced discussions to ramp up the global success of its MINI brand through a new joint venture in China. A key element of the brand’s continued strategic development will be local production of future battery-electric MINI vehicles. To this end, the BMW Group has signed a “letter of intent” with the Chinese manufacturer Great Wall Motor. Expanding the charging infrastructure is a fundamental condition for the breakthrough of electro mobility. Positive political framework conditions can further support the process. Customers only switch to electric cars if they can rely on an adequate charging infrastructure for everyday driving and enjoy advantages in the form of privileges compared to vehicles with combustion engines. In founding the IONITY joint venture, the BMW Group, Daimler AG, Ford Motor Company and Volkswagen Group, including Audi and Porsche, are setting the course for creating the most high-performance rapid charging network for electric vehicles in Europe. Construction and operation of around 400 rapid charging stations in total by 2020 are important steps to ensure electro mobility on longer distances, too, and establishing these in the market. Magnitude of Impact: Due to the strategic importance of acquisitions in this area the impact is high. |
| Access to capital | Impacted | Description: Climate change and scarcity of resources are some of the greatest challenges our society is facing today. Thus solutions from companies are required. Shaping individual mobility and finding innovative solutions for products and services today for the needs of tomorrow is a key driving force for the BMW Group. Key is product efficiency and electrification. Since 2007, Efficient Dynamics technologies are in the standard configuration. We launched already in 2013 the full electric BMW i3 and in 2014 the BMW i8. We offer plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman. We sold in 2017 103,080 electrified vehicles and are leading e.g. the market for electrified vehicles in Europe with a market share of 21%. Until 2025 our portfolio will consist of 25 electrified models (12 fully electrified) with an expected share of BEVs/PHEVs of 15-25%. We continuously increase our resource efficiency and minimize CO2 emissions from our production. Since 2006, in vehicle production, the BMW Group has reduced its energy consumption per vehicle by 36.5% and its water consumption by 31.9%. CO2 emissions per vehicle produced were reduced by 61.0%. In 2017 all of our production locations in Europe draw their electricity exclusively from renewable sources and our target is to achieve this worldwide until 2020. A major factor in the success of the BMW Group is its consistent focus on the future and a key reason why we experienced over 30 successive quarters with an EBIT margin in our core automotive segment above 8%. We are one of the most profitable OEMs worldwide. Our long term thinking is recognized by capital market. Since many years we are leading sustainability ratings (CDP, DJSI). Our sharp focus on the future, combined with solid financials, enables us to have easier access to international capital markets. Moodyʼs has upgraded BMW AGʼs long-term rating to A1. Our company also has the highest Standard & Poorʼs rating of any European automobile manufacturer. Magnitude of Impact: With sustainability being one among other reasons for our good rating performance we assume the impact to be moderate. |
| Assets | Impacted | Description: Technical and process related knowledge and Intellectual properties, beside others in the field of future mobility solutions and electro mobility, has been created within a long tradition of innovation. Shaping individual mobility and finding innovative solutions today for the needs of tomorrow is a key driving force for the BMW Group. Research and development (R&D) are therefore of key importance for the BMW Group as a premium provider. R&D expenditure amounted to € 6,108 million in the year under report (2016: € 5,164 million) and will further increase in 2018, increasing our knowledge in all fields of mobility and low & zero carbon technologies. The high flexibility of our global production network lays the foundation for our continued growth. The company currently operates 31 facilities in 14 countries and continue to invest both in our locations in Germany and worldwide. We are preparing our sites for the diversity in powertrain systems to allow us to produce models with efficient combustion engines alongside electric vehicles and plug-in hybrids. Our sites are built on safe ground. Sustainability criteria are part of the criteria for choosing new sites. E.g. in the planning of our new plants in Brazil and Mexico, risks of flooding after hard rain are included and managed accordingly. Depending on the location we define from the beginning mitigation measures to ensure continuous operations. E.g. the site in Brazil has been raised to a higher level by ca. 3 meters to minimize risks of flooding after hard rain. Measures include also roofing of storage areas and hail protection. Our employees are a key asset. Our most recent employee survey shows: 90% of our associates say they are proud to work for the BMW Group, more than 80% say they are familiar with our strategy. This shared understanding will give us even greater momentum. The BMW Group’s worldwide workforce increased in 2017 to a total of 129,932 employees (2016: 124,729 employees; + 4.2 %). In conjunction with the implementation of the Group’s Strategy NUMBER ONE > NEXT, an increasing number of experts in future-oriented fields such as artificial intelligence and autonomous driving, electric mobility, smart production and logistics, data analysis and software development were hired. Magnitude of Impact: The impact is high as it is related to the core assets of BMW |
| Liabilities | Impacted | Description: Our financial liabilities serve mainly for refinancing our Financial Services segment: The BMW Group is a leading provider of financial services in the automobile sector, operating more than 50 entities and cooperation arrangements with local financial services providers and importers worldwide. The segment’s main business is credit financing and the leasing of BMW Group brand cars and motorcycles to retail customers. Customers can also choose from an attractive array of insurance and banking products. Operating under the brand name Alphabet, the BMW Group’s international multi-brand fleet business provides financing and comprehensive management services for corporate car fleets in 19 countries. Through its multi-brand business Alphera, the BMW Group provides credit financing, leasing and other services to retail customers. The segment also supports the BMW Group’s dealership organization, for example by financing dealership vehicle inventories. We do not see a direct link of these activities to climate change. Our core business of developing, producing and selling vehicles and motorcycles is basically financed out of the cash flow of these two segments. Therefore we do actually see no significant impact from climate change on BMW Group liabilities. However specific BMW Group activities are eligible for investment loans designed to promote sustainable development, e.g. by the KfW Förderbank which finances investments in the areas of environmental and climate protection or by the European Investment Bank EIB providing finance and expertise for sustainable investment projects that contribute to EU policy objectives. Those loans contribute to our target of having a liability structure, comprising a balanced mix of financing Instruments. Furthermore those loans come along with favorable conditions. A specific example is the paint shop in BMW Groups new site in San Luis Potosí in Mexico financed by a KfW loan. Within R&D programs are financed by such loans to further develop efficient dynamics technologies as well as electro mobility. Magnitude of impact: Due to the very small proportion of liabilities directly related to our climate change (e.g. KfW loans) the impact is very low. |
| Other | Please select |  |

## **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.**

Process & examples)

The strategic approach in the new strategy NUMBER ONE > NEXT is to leverage innovative technologies, digitalization and sustainability to deliver unique customer experiences. It is part of our culture and anchored in our processes to mitigate climate risks and explore opportunities arising from the global efforts of combating climate change (CC). Our three-level sustainability organization managed by the head of sustainability ensures that CC aspects are integrated into our business strategy: The Sustainability Board SB (full Board of Management, head of strategy, head of sustainability) determines the strategic alignment for sustainability issues. The Sustainability Circle SC (senior vice president level), part of the strategy circle, is in charge of the implementation of all sustainability activities in the departments to reach agreed targets and reports to the SB. This process influenced our strategic approach to e-mobility: We offer the BEV/PHEV (Battery Electric/Plug-In-Hybrid Electric Vehicle) models BMW i3 / i8, plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 & the MINI countryman, have sold about 103,080 BEVs/PHEVs in 2017, will launch in 2019 and 2020 BEV models of the MINI respectively the BMW X3 and expect in 2025 a 15-25% share of BEVs/PEHVs in new sales. Core principles, ongoing discussed between managers and employees, ask all to save resources and promote innovations, e.g. through our worldwide employees idea management system. Trainings sharpen the understanding of their responsibility. Resource efficiency targets are set for the production network and each site. Measures are implemented (e.g. for the paint shop). Environmental managers in each site monitor their effect and report monthly to the site managers/half-yearly to the board member responsible for production. Group wide target monitoring is done through central departments. Progress is reported back to SC and SB.

Aspects)

CC increases physical risks, e.g. through weather extremes. This directly exposes our production and supply chain. Awareness of CC and the need for action also changes regulations and consumer behavior. We take on our responsibility to mitigate CO2 emissions along the whole value chain.

a) Vehicles fleet regulations / CO2 taxations aim for mitigation. The included regulatory risks challenge BMW Group with different necessities. But changes in consumer behavior towards demand of more sustainable mobility also offer opportunities for our Efficient Dynamics (ED) strategy (efficiency improvements for conventional cars / components, PHEV, BEV) and new mobility services.

b) Our clean production philosophy contributes to the global mitigation efforts by reducing environmental impacts of the production and the procurement. Risks as higher prices for CO2-emissions (e.g. through trading schemes) further motivate our efforts to maximize energy efficiency and increase the use of renewable energy.

Short term strategy)

Our short term strategy aims towards mitigating CO2 emissions both from a) product use and b) the value chain of our production, accounting for indirect risks and opportunities from regulations and changing consumer behavior and adoption of direct physical risks from CC.

a) To improve global mitigation and meet regulations and changing consumer demand we further develop the ED technology package to meet fleet emission targets worldwide. We introduced the BEV BMW i3 and PHEV BMW i8 and offer plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 & the MINI countryman. In 2018, we aim to sell more than 140,000 electrified vehicles.

b) To improve global mitigation we continue reducing CO2 emissions through further increase of energy efficiency, utilization of combined heat and power plants (CHP) and increase of the share of energy from renewable sources. We reduced CO2 emissions per vehicle produced by 61% between 2006 and 2017. To counter direct physical risks we take measures, e.g. include vulnerability risks in planning of new production sites and selection of suppliers.

Long term strategy and targets)

a) By offering sustainable individual mobility BMW Group mitigates climate-related physical risks and develops business opportunities. We are proceeding in our ED strategy: Further increase efficiency of conventional cars, roll out PHEVs / BEVs in a broad range of models, develop hydrogen solutions & develop sustainable mobility services. Our target: Emissions reduction by at least 25% in CO2 emissions of our worldwide fleet from 2008 to 2020 and 15-25% share of BEVs and PHEVs of new sales in 2025.

b) Our target to further improve global mitigation: Reduce absolute 2015 production site emissions by -20% until 2020 and aim to reduce CO2 emissions of all our locations to zero until 2050. The targets as described in a) and b) are clear contributions to the INDCs in our markets. We stress test via scenario analysis our planning of product offers, sales volumes and R&D investments against upcoming regulations on climate change, taking into account the ambition from the COP21 agreement. When reviewing existing targets until 2020 and developing new targets for CO2 efficiency in production we check for consistency with Science Based Targeting.

Strategic Advantage)

Early introduction of a group wide environmental strategy led to a competitive advantage. Through ED technology in all vehicles we were able to reduce CO2 emissions of our newly sold vehicles worldwide since 2008 by 22.5% to 141 g CO2/km in 2017. Our PHEV and BEV offers supported this. In EU28 we were in 2017 the leading provider of BEVs & PHEVs. The BMW i3 is among the most successful BEVs worldwide. The decreased total costs of ownership give us a competitive edge particularly in markets with a CO2-based vehicle tax. Our leading position in sustainability, fostered by our success in CDP or DJSI, supports sales, leads to growth and positively influences our credit rating and funding costs.

Decisions)

a) The opportunities of changing consumer behavior and regulatory risks regarding our products highly affected the following decisions in 2017.

- Increase of R&D expenditures to 6.1 billion € to develop models with further increased efficiency, PHEVs, BEVs & mobility services.

- Launch of the plug-in hybrid drivetrain for the Mini Countryman.

- Launch of the JV IONITY with other OEMs (develop/implement a High-Power Charging (HPC) network across Europe).

b) The need to mitigate CC highly affected the following decisions in 2017 in production and supply chain:

- Commissioning of the new, efficient Dadong site extension in Shenyang / China.

- BMW X3 start of production in Rosslyn / South Africa to increase capacity / mitigate risks such as interruption due to extreme weather conditions.

- Decide to purchase 100% electricity from renewable energy sources from 2020 onwards (already achieved in 100% of our European sites).

## **C3.1d**

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

|  |  |
| --- | --- |
| **Climate-related scenarios** | **Details** |
| Other, please specify (Future regulatory requirements) | Description of (a) scenario identification, (b) time horizon and company relevance and (c) areas considered: (a) We simulate the average CO2 emissions of our future fleet (based on long range planning), considering future powertrain mix (conventional powertrains as well as shares of PHEV / BEV powertrains) and corresponding capital expenditures/capital allocation against upcoming regulations on climate change via scenario analysis, assuming e.g. fleet emission limits in main markets such as EU28, USA or China after 2020. (b) We consider regulation scenarios until 2030 and expect that governments will further intensify limit regulations based on existing and future scientific analyses, as well as what is technologically possible. These future limits are expected to be very ambitious and will entail considerable investment and development work for manufacturers. (c) The scenario analysis is related to the use phase of our new vehicle fleet in the corresponding market. Specific description of (a) results, (b) usage in strategy/business development and (c) influence on strategy/business development: (a) The key result is: In all markets for all future fuel efficiency levels under discussion future target compliance is heavily depending on the market success of electro mobility. Market success is dependent on several factors such as attractive products as well available charging infrastructure and supporting policies for the ramp up. (b) BMW Group as car manufacturer contributes to market success by offering attractive BEV and PHEV to its customers. A key process in strategic planning entails the BMW Group defining specific CO2-targets for each product line and each new vehicle project in order to achieve BMW Groups strategic targets on vehicle fleet CO2-emissions as well as all regulatory requirements worldwide. The BMW Group’s Strategy unit is responsible for monitoring and further developing these targets. The “Complete Vehicle Architecture” unit within the R&D department coordinates the development and implementation of fuel-saving technologies in the individual vehicle projects. Our target: Emissions reduction by at least 25% in CO2 emissions of our worldwide fleet from 2008 to 2020 and a 15-25% share of BEVs and PHEVs of new sales in 2025. Expanding the charging infrastructure is a fundamental condition for the breakthrough of electro mobility. BMW contributes to the development of the charging infrastructure. E.g. our ChargeNow service gives access to currently more than 137,000 public charging points from different providers in 29 countries worldwide. In China, more than 47,000 charging points were available to our customers at the end of 2017. Furthermore the BMW Group and other carmakers together founded the IONITY JV, which aims to build up a high-performing fast-charge network across Europe along important traffic corridors. Positive political framework conditions can further support the process. This has become clear in fast-growing markets for electro mobility, such as Norway and California. As part of the political dialogue, we advocate for measures to promote electro mobility, whether by way of financial support or non-monetary packages of measures (for example the use of bus lanes and/or introduction of dedicated lanes, preferential parking). (c) Under the term Efficient Dynamics, the BMW Group has been successfully working on reducing fuel consumption and vehicle emissions. We are proceeding in our efficient dynamics strategy and further increase efficiency of conventional cars, roll out PHEVs / BEVs in a broad range of models, develop hydrogen solutions and develop sustainable mobility services. As an example we reduced CO2 emissions in newly-sold vehicles in EU28 by around 42% between 1995 and 2017 and were in 2017 market leader of electrified vehicles (BWV, PHEV) in the EU28. |
| 2DS | Description of (a) scenario identification, (b) time horizon and company relevance and (c) areas considered: (a) We analysed the BMW Group CO2 emissions for our own operations within the methodology as outlined by the technical paper “SECTORAL DECARBONIZATION APPROACH (SDA): A method for setting corporate emission reduction targets in line with climate science” of the Science Based Targets Initiative respectively the specifications as given in the Nature Climate change letter “Aligning corporate greenhouse-gas emissions targets with climate goals” (Authors: Oskar Krabbe, Giel Linthorst, Kornelis Blok, Wina Crijns-Graus, Detlef P. van Vuuren, Niklas Höhne, Pedro Faria, Nate Aden and Alberto Carrillo Pineda). We did our analysis on the basis of an Excel calculation from the consultancy ECOFYS for our production emissions where general available data respectively general assumptions as for the increase of premium vehicle production were used. (b) In a second step we adjusted the general assumption internally (we did not make the data transparent to ECOFYS) to our concrete data from planning until 2020 to assess our existing target of reducing absolute 2015 production site CO2-emissions by -20% until 2020 against the 2 degree scenario, as well as to consider target levels for 2030. (C) The area considered within this approach is emissions from our production network respectively from all BMW Group locations. Specific description of (a) results, (b) usage in strategy/business development and (c) influence on strategy/business development: (a) Based on the intensity target curve corresponding to the carbon budget of the International Energy Agency (IEA) industry sector “Other Industries” we calculated a company specific target curve. We found that the target value of our 2020 target for scope1 and scope 2 emissions is well below the science based targets emission curve. (b) Strategic decisions respectively business decisions are not made by just considering one framework such as scenario analysis based on a 2 degree scenario. However, when considering energy efficiency and CO2 targets until 2030 we took into account also the target requirements from the 2 degree scenario. (c) When deciding for new production sites and technologies, energy efficiency and emissions is always assessed. New technologies have to contribute to our targets for energy efficiency and CO2 reduction. In the period from 2006 until 2020 we set as target for energy consumption per vehicle a -45% reduction. We achieved a -36.5% reduction until 2017. Facing the last period of our actual strategic resource/energy efficiency target 2020, we are already working on our next strategic target. We are actually calculating the strategic targets for 2030. Even though we are already one of the most resource/energy efficient car manufacturers, we are aiming to set a new ambitious target to keep pace in our development. Furthermore we set as target to reduce absolute 2015 production site CO2-emissions by -20% until 2020. Until 2050 we aim to reduce CO2 emissions of all BMW Group locations to zero. Since 2017 all European production sites purchase electricity which comes to 100% from renewable sources. From 2020 on, the BMW Group will only purchase electricity from renewable sources, an important step towards the 2050 target. |
| Other, please specify (Environmental Profit & Loss estimates) | Description of (a) scenario identification, (b) time horizon and company relevance and (c) areas considered: (a) We performed an environmental profit and loss calculation for one of our best selling cars (3 series). Based on the economic model of multiregional input- output analysis as well as quality-assured data of international environment and resource statistics we analyzed GWP, water depletion as well as airborne pollutants (e.g. PM10/PM2.5, NMVOC, NOx, SO2 or NH3) and land use as impact categories. From these, following the corresponding impact pathways until the so called “endpoints” human health, impact on nature and human made environment (Eco toxicity, human toxicity, damage to human made environment such as buildings) we derived price tags caused by these impacts (external costs). Scenario analysis is done by considering CO2-price scenarios (the CO2 price is the dominating factor for external costs) as well as degrees of internalization through (future) regulations and estimate impacts on our business model. (b) The time horizons is in particular 2030, but is also varied. Company relevance arises from our core business of producing and selling vehicles and motorcycles which cause CO2-emissions along the whole life cycle. (c) Areas considered are in particular BMW Groups own operations, the use phase of our products and our supply chain. Specific description of (a) results, (b) usage in strategy/business development and (c) influence on strategy/business development: (a) By calculating external costs different impacts categories can be compared and their relative relevance can be assessed. For BMW Group the by far most dominant impact category is CO2 emissions followed by airborne pollutants (e.g. PM10/PM2.5, NMVOC, NOx, SO2 or NH3) and water depletion. (b) Strategic decisions respectively business decisions are not made by just considering one framework such as scenario analysis based on E P&L. However from these price tags our focus on GWP and airborne pollutants and, with minor impact, worldwide water depletion have been confirmed. Furthermore we got insights into price tags from external costs which could materialize through regulations in operational costs of BMW Group and its supply chain as well as e.g. in additional costs of ownership for our customers. (c) Increasing CO2-efficiency of our products as well as of our production network are key areas we address to reduce the impact category GWP and like this anticipate future regulation: -Products: We are proceeding in our efficient dynamics strategy and further increase efficiency of conventional cars, roll out PHEVs / BEVs in a broad range of models, develop hydrogen solutions and develop sustainable mobility services. Our target: Emissions reduction by at least 25% in CO2 emissions of our worldwide fleet from 2008 to 2020 and a 15-25% share of BEVs and PHEVs of new sales in 2025. -Production: We set as target to reduce absolute 2015 production site CO2-emissions by -20% until 2020. We aim to reduce CO2 emissions of all BMW Group locations to zero until 2050. Since 2017 all European production sites purchase electricity which comes to 100% from renewable sources. From 2020 on, the BMW Group will only purchase electricity from renewable sources, an important step towards our 2050 target. |

## **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.**

Vehicles: It is our goal to create solutions and innovations that inspire our customers. Strategy NUMBER ONE > NEXT is the path to the BMW Group’s success over the long-term. It provides a roadmap for our transformation towards sustainable and digital mobility. Our future is electric. The BMW Group develops electric vehicles that combine the advantages of sustainable mobility with a new driving experience for customers. In 2017 we offered plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman as well as the battery electric vehicle BMW i3 and the plug-in hybrid vehicle BMW i8. We sold 103,080 electrified vehicles worldwide (BEVs: 31,482; PHEVs: 71,598) and led e.g. the market for electrified vehicles in Europe. We set clear goals for sustainable mobility: More than 140,000 electrified vehicles sold this year. A total of half a million electric vehicles and plug-in hybrids on the roads by the end of 2019. 25 electrified models, 12 of them pure electric, by 2025 with an expected share in our newly sold vehicle fleet between 15 and 25%.

Autonomous driving: Sustainable mobility and autonomous driving go hand in hand for us. We will be launching autonomous driving in the iNEXT in 2021. To reach our targets for automated and networked vehicles by 2021, existing alliances with MobilEye and Intel were deepened, as were those with the HERE navigation service. In 2017, the BMW Group also bundled all competencies for vehicle connectivity and automated driving in a new “Autonomous Driving Campus” in Unterschleissheim near Munich/DE. Automated and digitally networked vehicles have the potential to significantly reduce the number of accidents and traffic congestion, reduce emissions and increase the quality of life in cities. This applies especially when using electrification. With our planned BMW iNEXT model, we want to set new standards by 2021 and bring solutions for highly and fully automated driving up to series maturity. Services: At the start of the year, we took full ownership of DriveNow. We also acquired Parkmobile LLC – making the BMW Group the largest international provider of digital parking solutions. We now have all the options we need for continued strategic development of our mobility services. We want to be customers’ first stop for individual mobility. Herein, we will build a customer base of 100 million active customers by 2025. Our goal is to create a complete, all-inclusive ecosystem for customers. By 31 December 2017, e.g. the DriveNow car-sharing service had more than one million customers across Europe (2016: over 815,000 across Europe). DriveNow is currently available in 13 cities. It is one of the strongest drivers of electro mobility in Germany. To date, around 334,000 customers have driven some 16.4 million carbon-free kilometers using DriveNow’s BMW i3 electric vehicles. We also launched, in partnership with EVCARD, our ReachNow car-sharing service in China.

Production: Over the next few years, we will see different types of drivetrains on the roads. We are preparing our sites for this diversity by creating flexible architectures and plants. This will allow us to produce models with efficient combustion engines alongside electric vehicles and plug-in hybrids on the same production line. From 2020 on, the use of scalable modular electric construction kits will enable us to fit all model series with any type of drivetrain. This will make us extremely flexible, whichever way demand develops. We have clear targets to reduce resource consumption and CO2 emissions to further improve global mitigation: Reduce absolute 2015 production site emissions by -20% until 2020 and aim to reduce CO2 emissions of all BMW Group locations to zero until 2050. When reviewing existing targets until 2020 and developing new targets for CO2 efficiency in production we check for consistency with Science Based Targeting. We already reduced CO2 emissions per vehicle produced by 61% between 2006 and 2017.

## **C4. Targets and performance**

## **C4.1**

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

Both absolute and intensity targets

## **C4.1a**

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

### **Target reference number**

Abs 1

### **Scope**

Scope 1 +2 (market-based)

### **% emissions in Scope**

82

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

20

### **Base year**

2015

### **Start year**

2015

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

1267485

### **Target year**

2020

### **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

### **% achieved (emissions)**

100

### **Target status**

Underway

### **Please explain**

BMW Groups target is to reduce total CO2 emissions of its production network from 2015 to 2020 by 20%. Scope of target: The target includes the BMW vehicle production network (including the Chinese JV). From the 2015 emissions figures we got as percentage of emissions in scope 82% (Exclusions: Emissions from the BMW Group owned vehicle fleet and airplanes, central administration and R&D Munich (Germany), motorcycle plant Berlin (Germany) as well as International R&D offices, BMW Group owned branches and other buildings). In 2017, total emissions in our production network amounted to 989,111 tonnes of CO2, a 22% decrease in overall CO2 emissions when compared to 2015 (marked based calculation for Scope2 emissions). This means that we already achieved our 2020 target in 2017. Increase of energy efficiency was one key factor. Our target is to reduce energy consumption per vehicle produced by 45% between 2006 and 2020. By 2017 we achieved a 36.5% reduction. Supply of energy from renewable sources was another key element. In 2017 we purchased for vehicle production about 1,700 GWh of electricity, heat and cooling from renewable sources, among other things via certificates of origin. All European production sites are delivered with green electricity. In Spartanburg (USA) we replaced around 50% of our natural gas needs by utilizing landfill gas. In the next years we want to continue to expand electricity supply from renewable sources at our plants outside of Europe. Remark: We analysed the BMW Group CO2 emissions within the methodology as outlined by the technical paper “SECTORAL DECARBONIZATION APPROACH (SDA): A method for setting corporate emission reduction targets in line with climate science” of the Science Based Targets Initiative respectively the specifications as given in the Nature Climate change letter “Aligning corporate greenhouse-gas emissions targets with climate goals” (Authors: Oskar Krabbe, Giel Linthorst, Kornelis Blok, Wina Crijns-Graus, Detlef P. van Vuuren, Niklas Höhne, Pedro Faria, Nate Aden & Alberto Carrillo Pineda). We did our analysis on the basis of an Excel calculation from the consultancy ECOFYS for our production emissions using our planning until 2020 to find that the target value for scope1 & scope 2 emissions is well below the science based targets emission curve.

### **Target reference number**

Abs 2

### **Scope**

Scope 1 +2 (market-based)

### **% emissions in Scope**

94

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

100

### **Base year**

2015

### **Start year**

2015

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

1440000

### **Target year**

2050

### **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

### **% achieved (emissions)**

24

### **Target status**

Underway

### **Please explain**

We are pursuing our vision of a CO2-free energy supply of BMW Group and aim to reduce CO2 emissions of all BMW Group locations to zero until 2050. The absolute target Abs1 for the BMW Group production network is a major, joining the RE100 initiative of the Climate Group at the COP21 in Paris and commit to purchase 100 % renewable electricity in the future a further step to achieve the target Abs2 (for details of our renewable energy target within the RE100 initiative please see C4.2). Since Abs1 as well as the renewable energy target in C4.2 are interim targets to achieve Abs2, measures in 2017 are the same as described there. Procedure: On the way to 100% renewable energy supply of our locations BMW Group takes a holistic approach. Top priority is given to systematic reduction of energy consumption, as energy savings are always the best alternative, both for the environment and for our business. To cover the remaining energy requirements, we are expanding our own renewable energy generation systems and are increasingly drawing power from local renewable sources. The renewable energy target in C4.2 addresses only CO2-emissions from purchased electricity. Abs1 includes also emissions from heat supply as well as from fuel combustion inside the BMW Group. On a mid to long-term perspective we see the potential to replace in an economically reasonable way fossil fuels by renewable fuels (e.g. biogas) and are doing this e.g. in Spartanburg (USA) with landfill gas. Scope of target: The emissions in Scope include all BMW Group locations including the Joint Venture locations in China. It excludes emissions from company owned vehicles and airplanes. From the 2015 emissions figures we get as percentage of emissions in scope 94%. Remark: To calculate the % of emissions in scope we included in the denominator emissions from company owned cars and planes since these are BMW Group Scope 1 & Scope 2 emissions. In the method as outlined by the technical paper “SECTORAL DECARBONIZATION APPROACH (SDA): A method for setting corporate emission reduction targets in line with climate science” of the Science Based Targets Initiative these two categories belong however to other industry sectors. For our own sector, which belongs in the actual methodology to “Other Industries”, the target Abs2 means zero net CO2 emissions which is a science based 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 3: Use of sold products

### **% emissions in Scope**

100

### **% reduction from baseline year**

25

### **Metric**

Grams CO2e per kilometer\*

### **Base year**

2008

### **Start year**

2008

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

182

### **Target year**

2020

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

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

### **% achieved (emissions)**

90

### **Target status**

Underway

### **Please explain**

The BMW Group has committed itself to a long term reduction target for the fleet tailpipe emissions. The target refers to the Copenhagen Conference where the BMW Group communicated to reduce these emissions by 25% until 2020. The 25 % reduction is to be achieved by continuous development of our Efficient Dynamics strategy. Since 2007 BMW Group’s Efficient Dynamics (ED) is a comprehensive technologic approach for the consistent reduction of fuel consumption and emissions in the standard configuration of all cars of the BMW Group. It includes both highly-efficient automobiles with gradually refined combustion engines and revolutionary, all-electric cars and low-emission plug-in hybrids. ED technologies include e.g. efficient engines, optimized aerodynamics, intelligent energy management, light-weight design or Auto Start Stop function. Our future is electric. The BMW Group develops electric vehicles that combine the advantages of sustainable mobility with a new driving experience for customers. In 2017 we offered plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman as well as the battery electric vehicle BMW i3 and the plug-in hybrid vehicle BMW i8. We sold 103,080 electrified vehicles worldwide (BEVs: 31,482; PHEVs: 71,598) and led e.g. the market for electrified vehicles in Europe with a market share of 21%. Average fleet CO2 emissions per kilometer in the BMW Group in the core markets (EU, USA, China, Japan and Korea) fell by 2% to 141 g CO2/km (2016: 144 g CO2/km). We set clear goals for sustainable mobility: More than 140,000 electrified vehicles sold this year. A total of half a million electric vehicles and plug-in hybrids on the roads by the end of 2019. 25 electrified models, 12 of them pure electric, by 2025 with an expected share in our newly sold vehicle fleet between 15 and 25%.

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

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

## **C4.2**

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

### **Target**

Other, please specify (Electricity purchased)

### **KPI – Metric numerator**

Electricity purchased from renewable sources

### **KPI – Metric denominator (intensity targets only)**

Electricity purchased

### **Base year**

2015

### **Start year**

2015

### **Target year**

2020

### **KPI in baseline year**

42

### **KPI in target year**

67

### **% achieved in reporting year**

100

### **Target Status**

Underway

### **Please explain**

In 2015 BMW Group joined the RE100 initiative of the Climate Group at the COP21 in Paris and committed to purchase 100% of electricity from renewable sources for its operations and to develop a pathway to achieve this. We set as an interim target to purchase more than two third of our electricity from renewables by 2020. The present target corresponds to this interim target. In 2017 we already achieved a 75% share of electricity purchased from renewable sources for our worldwide operations. Increase of energy efficiency was one key factor. The target is to reduce energy consumption per vehicle produced by 45% between 2006 and 2020. By 2017 we achieved a 36.5% reduction. Supply of energy from renewable sources was another key element. In 2017 we purchased e.g. for vehicle production about 1,700 GWh of electricity, heat and cooling from renewable sources, among other things via certificates of origin. All European production sites are delivered with green electricity. In the next years we want to continue to expand electricity supply from renewable sources at our plants outside of Europe. Scope of target: The emissions in Scope include all BMW Group locations and the production sites in China. The electricity purchased in 2015 for the BMW Group production network (including China), for the corporate functions, development and administration in Munich (Germany) and for the motorcycle plant in Berlin (Germany) of 2,485,881 MWh makes about 95% of BMW Groups whole electricity purchased. The base year electricity consumption is derived by dividing 2,485,881 MWh by 0.95 and rounding.

### **Part of emissions target**

Relation of this target to Abs1 & Abs2: This target addresses only CO2-emissions from purchased electricity. Abs1 includes also emissions from heat supply as well as from fuel combustion inside the BMW Group. Abs2 goes on a mid to long term perspective far beyond these two targets. On a mid to long-term perspective we see the potential to replace in an economically reasonable way fossil fuels by renewable fuels (e.g. biogas) to achieve CO2 neutral operations. Where available BMW Group has such solutions already in place: We operate one combined heat and power plants (in Spartanburg USA) with landfill gas. Our site in Rosslyn (South Africa) is supplied with electricity generated with biogas (source: cattle farm).

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

RE100

## **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 projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

|  |  |  |
| --- | --- | --- |
|  | **Number of projects** | **Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked \*)** |
| Under investigation | 299 |  |
| To be implemented\* | 34 | 16531 |
| Implementation commenced\* | 32 | 49592 |
| Implemented\* | 185 | 66123 |
| Not to be implemented | 48 |  |

## **C4.3b**

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

### **Activity type**

Energy efficiency: Building services

### **Description of activity**

Lighting

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

40037

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

8900000

### **Investment required (unit currency – as specified in CC0.4)**

45000000

### **Payback period**

4 - 10 years

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

16-20 years

### **Comment**

We replace conventional lightning in BMW Groups production network with LED lightening step by step. In 2017 most of BMW Group locations have been equipped with LED lightening (LED implementaation at 24 BMW Group locations). This reduces electricity consumption by about 71,000 MWh per year. Remark: We calulate Scope2 emission reductions throughout 4.3 using the “location-based” method in accordance with GHG Protocol Scope 2 Guidance: Overall third-party electricity and heat purchased is calculated using emission factors from the Association of the German Automotive Industry (VDA). Due to our high percentage of electricity from renewable sources (75% of pure green electricity) this is more approperiate to make CO2 reductions from energy efficiency measures more pronounced.

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Heat recovery

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

992

### **Scope**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

180000

### **Investment required (unit currency – as specified in CC0.4)**

95000

### **Payback period**

1-3 years

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

11-15 years

### **Comment**

At the BMW Groups vehicle production site Spartanburg (USA) we implemented in the paint shop additional heat recovery measures to further improve the heat up of the inlet air by the outgoing hot process air. This reduces natural gas consumption by about 5,000 MWh per year.

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Process optimization

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

1545

### **Scope**

Scope 1

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

336000

### **Investment required (unit currency – as specified in CC0.4)**

400000

### **Payback period**

1-3 years

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

11-15 years

### **Comment**

At the BMW Group engine production site Landshut (Germany) in the foundry we modified the process to remove the sand core when producing the engine cylinder head and engine block in sand casting. We replaced the termical core removal by manual removal. This reduces electricity as well as natual gas consumption by about 5,000 MWh per year. We calulate Scope2 emission reductions throughout 4.3 using the “location-based” method in accordance with GHG Protocol Scope 2 Guidance: Overall third-party electricity and heat purchased is calculated using emission factors from the Association of the German Automotive Industry (VDA). Due to our high percentage of electricity from renewable sources (75% of pure green electricity) this is more approperiate to make CO2 reductions from energy efficiency measures more pronounced.

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Heat recovery

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

981

### **Scope**

Scope 1

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

177000

### **Investment required (unit currency – as specified in CC0.4)**

5100000

### **Payback period**

>25 years

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

11-15 years

### **Comment**

In BMW Groups vehicle production site Dingolfing (Germany) we replaced old ventilators in some buildings by new efficient ventilators and implemented heat exchangers for heat recovery. This reduces mainly natual gas but also electricity consumption by about 5,400 MWh per year. We calulate Scope2 emission reductions throughout 4.3 using the “location-based” method in accordance with GHG Protocol Scope 2 Guidance: Overall third-party electricity and heat purchased is calculated using emission factors from the Association of the German Automotive Industry (VDA). Due to our high percentage of electricity from renewable sources (75% of pure green electricity) this is more approperiate to make CO2 reductions from energy efficiency measures more pronounced.

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Other, please specify (Energy efficiency measures)

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

22568

### **Scope**

Scope 1

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

4500000

### **Investment required (unit currency – as specified in CC0.4)**

19200000

### **Payback period**

4 - 10 years

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

11-15 years

### **Comment**

In 2017 further 158 measures lead to a reduction of additional 22,568 t CO2 per year. Due to this large number we concentrated above on 27 exemplary measures (24 of those being single projects at 24 BMW Group locations to install LED lightening). Instead of adding further 158 entries respectively corresponding measures which would be similar to the above ones, with decreasing contributions to CO2 reduction, we add here only one additional entry. This entry collects all the additional measures from our worldwide continuous improvement process and investments in specific efficiency measures for existing technologies. We calulate Scope2 emission reductions throughout 4.3 using the “location-based” method in accordance with GHG Protocol Scope 2 Guidance: Overall third-party electricity and heat purchased is calculated using emission factors from the Association of the German Automotive Industry (VDA). Due to our high percentage of electricity from renewable sources (75% of pure green electricity) this is more approperiate to make CO2 reductions from energy efficiency measures more pronounced.

## **C4.3c**

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

|  |  |
| --- | --- |
| **Method** | **Comment** |
| Internal price on carbon | Climate change and rising energy prices demand efficient energy usage as well as the increased use of alternative energy sources. Our target is to be leading in the usage of renewable energies. Furthermore, achievements will not only improve the company's environmental impact assessment but, due to increasing energy prices, also the company's profitability. This drives investment to reduce carbon emissions and thereby avoids rising costs for energy and expected costs for CO2-emissions due to "Cap and trade", carbon taxes, etc. Investments are internally assessed with an integrated catalogue of measurements for quality, productivity and efficiency. This catalogue also accounts for an internalization of external CO2 costs, e.g. from carbon trading schemes, on an investment level. |
| Compliance with regulatory requirements/standards | Compliance with regulatory requirements and standards is one of the basic prerequisites for the success of the BMW Group. Current law provides the binding framework for our wide range of activities around the world. Markets such as the US, Japan, Korea, China and Europe are introducing increasingly strict carbon emissions performance requirements for vehicles. The increasing number of regulations and standards drives investment in emissions reduction activities and thereby fosters innovation. |
| Internal finance mechanisms | The integration of environmental aspects in the early stages of major investment decisions increases the profitability of these projects. Considering the costs of carbon emissions in the planning phase of investment decisions increases the incentive to implement emissions reduction activities. Costs of carbon emissions are included in profitability calculations and are reflected in the return on investment. |
| Employee engagement | With the aim of establishing sustainability even more thoroughly in all areas of the company, a number of sustainability and environmental protection training courses have been established. Examples: Sustainability topics and the relevance of resource efficiency is addresses at the introductory event for new employees as well as in courses of our trainees. Another example are the annual environmental protection and health and safety courses. Ideas developed are implemented within our employee’s idea management system which was established a long time ago. In addition to the permanently active online supported suggestion scheme, campaigns have been running to specific subjects as for example energy saving measures. In 2017 about 2.800 ideas were implemented which address among others also sustainability issues like energy and water savings. |
| Internal incentives/recognition programs | The strategic approach in the new strategy NUMBER ONE > NEXT is to leverage innovative technologies, digitalization and sustainability to deliver unique customer experiences. It is part of the BMW Group culture and anchored in our processes to mitigate climate risks and explore opportunities arising from the global efforts of combating climate change. Corporate sustainability measured in balanced scorecard terms (at Group level) is included as a formal corporate objective since 2009.Detailed targets are then derived for each of the divisions within the Group in the area of climate change. Those targets are for example a 25% reduction in fleet averaged CO2 emissions of new vehicles (2008-2020) and 45% less energy consumption per vehicle produced (2006-2020). Management bonus payments (all management positions) are directly linked to the fulfilment of corporate and divisional targets. The proportion of variable remuneration to total remuneration increases commensurate to the position within the corporate hierarchy. |

## **C4.5**

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

Yes

## **C4.5a**

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

### **Level of aggregation**

Group of products

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

Low carbon products contribute to the transition of a low carbon economy. BMW Group interpretation is, that only battery electric vehicles (BEV) and plug-in hybrid vehicles (PHEV) (xEV’s) belong to this category. In addition to the i3 and the i8 model, introduced in 2013 respectively 2014, we offered in 2017 plug-in hybrid drivetrains for the 2 Series, 3 Series, 5 Series, 7 Series, the X5 and the MINI Countryman.

### **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 (Impact of electro mobility)

*BMW Group interpretation is, that only battery electric vehicles (BEV’s) and plug-in hybrid electriv vehicles (PHEV’s) belong to the category of low carbon products.*

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

4

### **Comment**

To get a rough estimate of the total emissions avoided per year we calculate averaged fleet emissions of our xEV fleet in the EU28 in 2017 (36 g CO2/km) and compare it to EU28 fleet emissions without xEV’s (127 g CO2/km). We calculate one main market (39% of our retail volume) because fleet emissions of xEV’s and conventional cars depend on the test cycles in the corresponding legislation. We multiply the difference of (127 – 36) g CO2/km with an averaged mileage of 15,000 km per year and the whole Volume of xEV’s worldwide of 103,080 units to find about 140,000 t CO2 avoided in 2017. The percentage of total revenues from Climate Change Products in 2017 is calculated as follows. To estimate the percentage of revenue for Low Carbon Products we divided the number of “Low carbon products” of 103,080 vehicles by the total vehicles sold (2,463,526) and get about 4.2%.

### **Level of aggregation**

Company-wide

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

The use of all BMW Group cars sold in 2017 enable our customers to reduce CO2 emissions, both compared to the use of comparable products of competitors as well as compared to older BMW Group vehicles which are to be replaced. Starting in 2007 we step by step introduced Efficient Dynamics (ED) technologies in the standard configuration. We continuously improve and extend the ED technology package to bring down the CO2 emissions from vehicle generation to vehicle generation. We have been adding electric vehicles to our model range. In addition to the i3 and the i8 model, introduced in 2013 respectively 2014, we offered in 2017 PHEV versions for the 2 Series, 3 Series, 5 Series, 7 Series, the X5 and the MINI Countryman and sold 103,080 PHEVs and BEVs (xEVs). By 2025, we plan to offer 25 electrified models, of which twelve will be purely electric and expect a xEV share between 15 and 25%. We were e.g. able to reduce CO2 emissions of our newly sold vehicles in Europe (EU-28) by around 42% between 1995 and 2017. Fleet averaged emissions in 2017 were 122 g CO2/km (EU-28). The fleet averaged CO2 emissions per kilometer worldwide decreased in 2017 by 2 % to 141 g CO2/km (2016: 144 g CO2/km). Other examples how our products & services contribute to avoid GHG emissions are our Car Sharing services DriveNOW and ReachNOW or features such as ConnectedDrive or ECO PRO mode: (1) By 31 December 2017, DriveNow had more than one million customers across Europe, ReachNow in the USA more than 82,000. DriveNow is e.g. one of the strongest drivers of electro mobility in Germany. To date, around 334,000 customers have driven some 16.4 million carbon-free kilometers using DriveNow’s BMW i3 electric vehicles. (2) Connected Drive is a package of intelligent technologies that interconnect the driver, vehicle occupants, the vehicle itself and the environment. Contributions are made e.g. by identifying the fastest and most efficient routes or simplifying the search for a parking place – an activity that currently still accounts for about 30 % of city traffic. (3) All BMW models come standard with a Drive Performance control for activating the ECO PRO mode. Depending on individual driving style, the ECO PRO mode allows additional fuel savings of about 15%. As this mode is not activated in the usual test cycles, the full fuel savings are realized only in real day-to-day driving.

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

Avoided emissions

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

Other, please specify (Use phase fuel consumption)

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

90

### **Comment**

To get a rough number we proceed as for “Low Carbon Products” and calculate the total CO2 emissions avoided in 2017 for EU28 (39% of retail volume). Each model equipped with the newest Efficient Dynamics technology package saves annually a certain amount of fuel when compared to its predecessor (we compare the fuel consumption in the New European Driving Cycle and assume cars to be driven by 15,000 km each year on average). Summing up the fuel saving of all vehicles with the efficient dynamics technology package sold in Europe (EU28) but not taking into account the BEV’S and PHEV’s sold in 2017 gives a total amount of gasoline and diesel saved. Applying the emissions factor of 2.38 CO2e per litre for vehicles with gasoline engines and 2.66 kg CO2e per litre (diesel engines) and a GWP of CO2 emissions equal to 1, the total amount of 210,000 metric tons CO2e avoided is derived. We extrapolate emissions avoided worldwide by dividing the EU28 figure by 39% and find round about 540,000 t CO2. Since we estimate in this category avoided emissions by third parties we add to the avoided emissions worldwide from conventional cars the avoided emissions from low carbon products to find about 680,000 t CO2 avoided. The percentage of total revenues from Products in 2017 which avoid emissions is calculated as follows: To estimate the percentage of revenue for products & Services avoiding emissions we divide the revenues from the automotive segment by the total revenue of the BMW Group and find 90 %.

## **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 1990

### **Base year end**

December 31 1990

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

246060

### **Comment**

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

### **Base year start**

January 1 1990

### **Base year end**

December 31 1990

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

489063

### **Comment**

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

### **Base year start**

January 1 1990

### **Base year end**

December 31 1990

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

489063

### **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.**

European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations

European Union Emissions Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for aircraft operators

ISO 14064-1

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?**

### **Row 1**

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

625072

### **End-year of reporting period**

<Not Applicable>

### **Comment**

## **C6.2**

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

### **Row 1**

### **​Scope 2, location-based​**

We are reporting a Scope 2, location-based figure

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

We are reporting a Scope 2, market-based figure

### **Comment**

## **C6.3**

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

### **Row 1**

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

1572432

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

510911

### **End-year of reporting period**

<Not Applicable>

### **Comment**

Market-based emissions were calculated in accordance with the GHG Protocol Scope 2 Guidance. Landfill gas and wood pellets used in our operations as well as electricity from renewable energy sources has been multiplied with an emission factor of zero when calculating the BMW Group CO2 emissions. We applied our supplier's electricity labelling in Germany plus updated VDA factors. Location-based emissions were calculated by multiplying the third-party electricity and heat purchased with the newest VDA factors (VDA: German Automotive Association).

## **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**

International R&D offices, BMW Group owned branches and other buildings.

### **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 the source is excluded**

These emissions are estimated to account for less than 5% of our total CO2e emissions. By assessing and managing our CO2 emissions, we are driven by materiality. We therefore focused first on our vehicle production sites where about 90% of emissions occurs. Next largest amount of emissions steam from administration and R&D located in Munich as well as from the motorcycle production sites. These are included in our CDP response since 2015 and are externally verified by PWC since 2016. We consider emissions from International R&D offices, BMW Group owned branches and other buildings as to be not relevant because they account for less than about 5% of total emissions but collection would cause disproportionately high costs since various locations distributed around the world contribute (disadvantageous cost/benefit relation).

### **Source**

CO2e emissions from VOC and N2O.

### **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 the source is excluded**

These emissions in CO2 equivalent account for <1 % of our total CO2 equivalent emissions. By assessing and managing our CO2 emissions, we are driven by materiality. Due to the very small percentage these emissions are therefore not listed in our sustainable value report 2017 and the annual report 2017. To be consistent with the already published data we omit them here too. Remark: Nevertheless reduction of VOC is an important target but not due to its carbon potential but its effects on human health. We set as target a reduction of VOC emissions per vehicle by 45% between 2006 and 2020. Between 2006 and 2017 solvent emissions were already reduced by 59.0%.

## **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**

16786192

### **Emissions calculation methodology**

(i) Types and sources of data: The BMW Group analyses the environmental impact over the entire product life cycle and monitors the respective targets with the well-established instrument of life cycle analysis (LCA; ISO 14040/ISO 14044) using the commercial life cycle inventory GaBi4. Main input for the LCAs are detailed, car model specific material inventories, containing weights and material compositions of all parts. Emission figures are derived from processing procedure models, data as well as emission factors of GaBi4. Global warming potentials (GWP) applied are from the Institute of Environmental Sciences (CML) of the university Leiden (Netherlands). Emissions from purchased goods and services are one contribution to the overall emission figure calculated from the LCAs which can be separated. To calculate the emission figure we used in addition exact sales volumes of all vehicles respectively model types produced in 2017. (ii) Data quality: The data quality of our product specific material inventories and therefore the basis of our calculations are assessed to be high. Limitations in exactness come from two sources: (1) Use of industry average processing models and average data of GaBi4, necessary as the BMW Group depends on information from members of the supply chain who do not yet report their Scope 1 & 2 emissions to provide exact figures. (2) BMW Group prioritized the main models (1, 3, 5, 7, X3, X5, i3) in analyzing full scale LCAs. Other sale figures are attributed to the most comparable model to calculate total CO2 emission from purchased goods and services. The data as well as the emission figure has been checked by PwC in limited assurance. (iii) Methodologies, assumptions, allocations: Based on detailed material inventories we calculated the LCAs of the BMW 1,3,5,7, X3, X5 Series and i3 with the life cycle inventory GaBi4 and the CML GWPs and extracted the emission figures of the purchased goods and services. We then allocated all vehicles sold in 2017 to the model which fits best. Multiplying the number of assigned vehicles with the emission figure of the corresponding model we calculated as sales weighted emission figure 16,786,192 metric tons CO2e for purchased goods and services.

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

100

### **Explanation**

### **Capital goods**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

BMW Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: Share in total BMW Group scope 3 emissions and influence of BMW Group on emission reductions. We do not regard this scope3 category to be of particular relevance because of our limited influence on these suppliers. The corresponding emissions are estimated to be below 5% of our total scope3 emissions in 2016. The selection of new equipment or buildings focuses on the use phase (increased resource efficiency, minimized CO2 emissions). Our influence on operations and therefore on CO2 emissions of these kinds of suppliers is less than e.g. for suppliers of production material where we often have closely collaborated for many years. Nevertheless measures to improve CO2 emissions performance are the same applying for all direct and indirect suppliers which are described in more detail in C12.1a (e.g. contractually fixed requirement to install an environmental management system).

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

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

BMW Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: Share in total BMW Group scope 3 emissions and influence of BMW Group on Emission Reductions. According to our estimates the scope 3 emissions of “Fuel-and-energy-related activities” are below 1% of total BMW Group scope 3 emissions. Furthermore BMW Group cannot directly influence the efficiency losses in energy grids and transport. Consequently the scope 3 category “Fuel-and-energy-related activities” is not of substantial relevance. To get a rough estimate of the scope 3 emissions of “Fuel-and-energy-related activities” we used fuel and country specific CO2 emission factors for indirect emission (provided by GEMIS, VDA emission factors and IEA CO2 emissions from fuel combustion 2006). These emission factors were multiplied with real activity data on the fuel input of BMW Group.

### **Upstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

1473087

### **Emissions calculation methodology**

(i) Types and sources of data: Real activity data in tons transport capacity per kilometer was used to calculate CO2 emissions for upstream transportation and distribution. Total transport capacity (inbound and outbound) in 2017 was 40,219 million tkm. With the 2017 system boundaries, we have reached an estimated coverage of about 90 % of the CO2 emissions from logistics. The scope currently comprises: Inbound volumes (material supplies to plants and spare parts delivery) for BMW and MINI vehicles in Germany, UK, USA, South Africa, China, Thailand, India and CKD/SKD locations as well as for delivery of spare parts to the parts supply center in Dingolfing (Germany). Outbound volumes (distribution of vehicles and spare parts) are included up to arrival at the distribution centers in the markets worldwide as well as for some markets up to arrival at the dealerships. Emission factors for freight by road (about 73 g CO2/tkm), train (between 14 and 23 g CO2/tkm depending on the train type), air (570 respectively 733 g CO2/tkm depending on the airplane type) and ship (about 10 g CO2 /tkm for container carriers and 33 g CO2 /tkm for car carriers) are used according to direct reporting of CO2 factors by transport companies and Tremod. (ii) Data quality: The data quality is assessed to be high as real activity data was used. The data as well as the emission figure has been checked by PwC in limited assurance. (iii) Methodologies, assumptions, allocations: CO2 emissions are calculated in accordance with DIN EN 16258. Transport capacities for road, rail, air and sea transport were measured. Limitations in scope are described under (i). For each transport capacity average emission factors described under (i) were multiplied with transport capacities. Other assumptions than average emissions were not made.

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

100

### **Explanation**

### **Waste generated in operations**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

BMW Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: Share in total BMW Group scope 3 emissions and influence of BMW Group on Emission Reductions. According to our estimates the scope 3 emissions of “Waste generated in operations” are below 0.1% of total BMW Group scope 3 emissions. In consequence this category is not of substantial relevance. However, due to our strong commitment to recycling and closed loops with many initiatives implied already in recent years total waste for disposal was reduced to 9,031 tons in 2017 (-79.6% since 2006) which is equivalent to a reduction in scope3 emissions in this category. To get a rough estimate of the scope 3 emissions from the disposal of the remaining waste (not being recycled and not being reused) we multiplied the various waste categories with corresponding emission factors from the LCA inventory GABI4. Furthermore we included the emissions from transport to the respective treatment facilities.

### **Business travel**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

169233

### **Emissions calculation methodology**

(i) Types and sources of data: CO2 emissions from Business travel are calculated from real activity data in regard to destinations, transport kilometers and the mode of transport used. Business travel in scope covers more than 90% of the total BMW Group business travel. Air travel is based on data from sold tickets respectively passenger miles booked with Bavaria-Lloyd Reisebüro GmbH (German and Austrian entities), global business travel is based on data delivered from the international BMW Group offices. Travel with rental cars is based on data of all bookings (national and international) within the BMW accounts with Sixt and AVIS. Travel by train is considered without Germany (our German rail business travel is CO2 neutral). To calculate the emission figure from these data we used the publicly available “GHG Protocol tool for mobile combustion. Version 2.6”. The emission factors of this tool come from the UKs DEFRA, the US EPA and the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. (ii) Data quality: The data quality is assessed to be high as real activity data was used. A few markets send only a list of destinations. In this case we calculated the corresponding distances by our own. The data as well as the emission figure has been checked by PwC in limited assurance. (iii) Methodologies, assumptions, allocations: In a few markets we had to calculate the travel distances from the delivered lists of destinations. We allocated the business travel respectively the distances travelled to the categories of each mode of transport as given by the GHG Protocols mobile combustion tool (e.g. domestic, short or long haul air travel with economy, business or first class). We put in the distances into the mobile combustion tool (excel based). The emission figure for business travel of 169,233 metric tons CO2e is calculated automatically by this tool.

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

100

### **Explanation**

### **Employee commuting**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

140187

### **Emissions calculation methodology**

(i) Types and sources of data: To calculate CO2-emissions from employee commuting BMW Group relies on real activity data for trips to and from destinations for 63% of employees of the BMW Group. The travel data was aggregated to the following modes: “Car kilometers”, “public transport kilometers”, “plant bus kilometers” and “bicycle” respectively “foot kilometers”. These activity data were multiplied with corresponding emission factors: For the total sum of kilometers driven with the employee cars we used 175 g CO2 / km, for the total sum of kilometers travelled via public transportation we used 75 g CO2 / km and for the total sum of kilometers driven with the plant buses we used 742 g / km. The average emission factors for car travel and public transport were taken from the ifeu institute and Tremod. For plant busses we gathered information on the fuel consumption directly from the bus companies and used the diesel emission factor of 2.66 kg CO2 per litre. The mileage was assessed by census at the production sites. (ii) Data quality: The data quality is assessed to be high as real activity data was used. The data as well as the emission figure has been checked by PwC in limited assurance. (iii) Methodologies, assumptions, allocations: For the activity data census were carried out in recent years and further validated by comparisons with parking spot use, public transport job ticket holders, plant bus registrations and the number of available parking spots for bicycles. . Further assumptions based on the census were: 1.08 BMW employees travelled on average per car and the average daily distance was 27 km. The average public transport distance was 20 km and the average plant bus distance was 44 km. Finally the bicycle and pedestrian average distance was 4 km. To calculate the emission figure we summed up the kilometers travelled by the employees in each mode in 2017 and multiplied with the corresponding emission factors. Finally the so obtained emission figure is divided by 0.63 (63% of employees are covered by the real activity data) to extrapolate the emissions from employee commuting for the whole BMW Group.

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

63

### **Explanation**

### **Upstream leased assets**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

BMW Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: Share in total BMW Group scope 3 emissions and influence of BMW Group on Emission Reductions. Emissions from upstream leased assets belonging to our production network are included in our scope1 and scope2 emission figures. In addition to this, leased assets worldwide such as office buildings not included in scope 1 and scope2 make a negligible contribution when compared to our total scope3 emissions. Therefore emissions from upstream leased assets are of minor relevance.

### **Downstream transportation and distribution**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

BMW Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: Share in total BMW Group scope 3 emissions and influence of BMW Group on Emission Reductions. The scope 3 category “Downstream transportation and distribution” is assessed to be close to 0 and so to be of no relevance: According to the GHG Protocol “Downstream transportation and distribution” is defined as “Transportation and distribution of products sold by the reporting company between the reporting company’s operations and the end consumer (if not paid for by the reporting company), including retail and storage (in vehicles and facilities not owned or controlled by the reporting company)”. Transportation of our products to pick-up of customer in either BMW Group owned or BMW Group franchised dealerships is paid for by BMW Group and therefore included in the scope 3 category “Upstream transportation and distribution”. Retail and Storage of our products is also accordingly accounted for in either scope 1+2 (BMW Group owned dealerships) or in the scope 3 category “Franchises”.

### **Processing of sold products**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

BMW Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: Share in total BMW Group scope 3 emissions and influence of BMW Group on Emission Reductions. BMW Groups core business, premium mobility products and services are consumer goods, which are not further processed. We sell small amount of engines / powertrains to other companies resulting in negligible emissions from further processing. Consequently the scope 3 category “Processing of sold Products” is not relevant for BMW Group.

### **Use of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

51887708

### **Emissions calculation methodology**

(i) Types and sources of data: The emission figure is based on real activity data of the main markets Europe (EU28), USA, China Japan and Korea, covering about 84% of our worldwide sales. By law we have to know the exact average CO2 emission figure of each car and, in consequence, for the fleet of new vehicles sold in the corresponding market (e.g. 122 g CO2 / km in EU28 in 2017), accounting for different driving cycles depending on the country and according to national legislation. Furthermore we used the sales volumes of 2017 in these markets as well as the total sales volume of 2,463,526 vehicles. (ii) Data quality: Due to the regulated and standardized measurement of the CO2 emissions in driving cycles of the corresponding markets, data quality is assessed to be high. The data as well as the emission figure has been checked by PwC in limited assurance. (iii) Methodologies, assumption, allocations: To calculate total emissions from the use of sold products additional assumption is an average mileage of 150,000 km over life time. We multiplied the average fleet emissions (g CO2 / km) of the above mentioned markets with the corresponding sales volumes to get a sales volume weighted average emission figure. Multiplying this figure with the average mileage of 150,000 km and the total worldwide sales volume gives the total emissions from the use phase of our cars sold in 2017.

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

100

### **Explanation**

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

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

1234346

### **Emissions calculation methodology**

(i) Types and sources of data: BMW Group analyses the environmental impact over the entire product life cycle and monitors the respective targets with the well-established instrument of life cycle analysis (LCA; ISO 14040/ISO 14044) using the commercial life cycle inventory GaBi4. Main input are detailed, car model specific material inventories, containing weights and material compositions of all parts. Emission figures are derived from processing procedure models, data as well as emission factors of GaBi4. GWPs applied are from the Institute of Environmental Sciences (CML) of the university Leiden (Netherlands). Emissions from end of life treatment of sold products are one contribution to the overall emission figure calculated from the LCAs which can be separated. To calculate the emission figure we used in addition exact sales volumes of all vehicles respectively model types produced in 2017. (ii) Data quality: The data quality of our product specific material inventories and therefore the basis of our calculations is assessed to be high. Limitations in exactness come from two sources: (1) Use of industry average processing models and average data of GaBi4. (2) BMW Group prioritized the main models (1, 3, 5, 7, X3, X5, i3) in analyzing full scale LCAs. Other sales figures are attributed to the most comparable model to calculate total CO2 emission from end of life treatment of sold products. The data as well as the emission figure has been checked by PwC in limited assurance. (iii) Methodologies, assumption, allocations: Based on detailed material inventories we calculated the LCAs of the BMW 1, 3, 5, 7, X3, X5 Series and i3 with the life cycle inventory GaBi4 and the CML GWPs. When modelling the end of life treatment we follow the standard processes as given by the EU directive for end-of-life vehicles (2000/53/EC) as well as the directive (2005/64/EC). When calculating the emission figures we did not account for “credits” from energy recovery or recycling. We extracted the emission figures of the end of life treatment of sold products from the LCAs. We then allocated all vehicles sold in 2017 to the model which fits best. Multiplying the number of assigned vehicles with the emission figure of the corresponding model we calculated as sales weighted emission figure 1,234,346 metric tons CO2e from the end of life treatment of sold products in 2017.

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

100

### **Explanation**

### **Downstream leased assets**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

BMW Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: Share in total BMW Group scope 3 emissions and influence of BMW Group on Emission Reductions. Scope3 emissions from downstream leased assets stem from Alphabet, which is a multi-marque fleet funding company, part of the BMW Group, currently operating in 19 countries. To calculate a total emission figure we have to exclude from the total volume of lease contracts the leased cars of the BMW Group since these are already included in the calculation of the use phase emissions. Emissions from vehicles of other brands contribute to the whole Scope3 emissions <1%. Furthermore BMW Group has limited influence on the fuel efficiency of vehicles from other OEMs as well as on customer’s preferences. Therefore, differently from the years before, we have decided to change this category from “relevant calculated” to “Not relevant, explanation provided”.

### **Franchises**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

BMW Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: Share in total BMW Group scope 3 emissions and influence of BMW Group on Emission Reductions. According to our estimates the scope 3 emissions of “Franchises” are below 2% of total BMW Group scope 3 emissions. Furthermore BMW Group has limited influence on BMW Group dealerships, for which we do not have operational control. Nonetheless, we started raising awareness of resource- and CO2-matters amongst our international, independent dealer network, by launching a sustainability initiative within the sales & marketing division of the BMW Group, also involving the country representatives. Part of this initiative is a worldwide dealer competition on ‘sustainability leadership’ amongst our entire dealer network. Due to the relative small amount of total scope 3 emissions in the category “Franchises” and limits to our operational influence we assess “Franchises” as not of particular relevance concerning BMW Groups scope3 emissions. To get a rough estimate of the scope 3 emissions of “Franchises” we calculated the intensity figure for CO2 emissions/per automobile sold in BMW Group owned dealerships in Germany, relying on directly monitored information on CO2-emissions. This intensity figures was then multiplied with global retail figures, excluding the retails of BMW Group owned dealerships, to estimate the total CO2-emissions of BMW Groups independent global dealership network. We acknowledge limited accuracy due to the assumptions of “new vehicles sold” as CO2-intensity for total dealership CO2 emissions.

### **Investments**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

BMW Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: Share in total BMW Group scope 3 emissions and influence of BMW Group on Emission Reductions. According to our estimates the scope 3 emissions from “Investments” are significantly below 1% of the total BMW Group scope 3 emissions. Due to the low amount of emissions in relation to the total BMW Group scope 3 emissions the scope 3 category “Investments” is not of substantial relevance. To estimate the emissions we analyzed in a first step all assets and identified those with material emissions (companies in the transportation or production sector, BMW Group share >5%). The relevant assets are: The joint ventures BMW Brilliance Automotive Ltd. (Shenyang, China), DriveNow GmbH & Co. KG (Germany, Munich), SGL Automotive Carbon Fibers LLC (Delaware, USA) and SGL Automotive Carbon Fibers GmbH & Co. KG (Germany, Munich) as well as SGL Carbon SE (Germany, Wiesbaden). BMW Brilliance and DriveNow GmbH & Co. KG were excluded since the emissions are already accounted for in our scope 1 and 2 emissions (BMW Brilliance), respectively in the scope 3 category “use of sold products” (DriveNow GmbH & Co. KG). From the three remaining entities we directly received their specific energy data (type, quantity) and got a rough estimate of the emissions by multiplying with the German emission factors of the newest VDA database.

### **Other (upstream)**

### **Evaluation status**

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

### **Other (downstream)**

### **Evaluation status**

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **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**

0.0000115

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

1135983

### **Metric denominator**

unit total revenue

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

98678000000

### **Scope 2 figure used**

Market-based

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

24.3

### **Direction of change**

Decreased

### **Reason for change**

Increased CO2 efficiency due to emission reduction activities caused the decrease in CO2 emissions / revenue by 24.3% (2016: 0.0000152). The intensity figure is calculated by dividing emissions from production, administration and company owned vehicles and planes by revenue. Use of environmentally friendly and economically sustainable energy resources and purchase of an increased amount of electricity produced from regenerative sources when compared to 2016 helped to reduce the CO2 emissions in production and administration in 2017 by 22.3%, despite a significant increase in output (e.g. 3.1% increase in vehicle production). At the same time revenue has increased by 4.8% when compared to 2016.

## **C7. Emissions breakdowns**

## **C7.1**

### **(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?**

No

## **C7.2**

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

|  |  |
| --- | --- |
| **Country/Region** | **Scope 1 emissions (metric tons CO2e)** |
| Germany | 454037 |
| China | 37448 |
| United States of America | 55741 |
| United Kingdom of Great Britain and Northern Ireland | 50497 |
| South Africa | 12711 |
| Austria | 11800 |
| India | 116 |
| Thailand | 31 |
| Brazil | 2691 |

## **C7.3**

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

By business division

## **C7.3a**

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

|  |  |
| --- | --- |
| **Business division** | **Scope 1 emissions (metric ton CO2e)** |
| BMW Group production network | 514764 |
| Company owned vehicles | 88782 |
| BMW Business Aviation | 6562 |
| Central Administration & Research and Innovation Center (FIZ) | 14964 |

## **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 | 514764 | <Not Applicable> | Emissions from our production network (car and motorcycle production). |
| 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)** |
| Germany | 781785 | 50596 | 1591583 | 1365251 |
| China | 379943 | 240747 | 563420 | 178000 |
| United States of America | 158089 | 158089 | 292758 | 0 |
| United Kingdom of Great Britain and Northern Ireland | 101886 | 0 | 244918 | 244918 |
| South Africa | 79252 | 52942 | 67506 | 22411 |
| Australia | 58037 | 0 | 208360 | 208360 |
| India | 4185 | 4185 | 3720 | 0 |
| Thailand | 2631 | 2631 | 4467 | 0 |
| Brazil | 6624 | 1721 | 21507 | 0 |

## **C7.6**

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

By business division

## **C7.6a**

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

|  |  |  |
| --- | --- | --- |
| **Business division** | **Scope 2, location-based emissions (metric tons CO2e)** | **Scope 2, market-based emissions (metric tons CO2e)** |
| BMW Group Production Network | 1434789 | 489483 |
| Central Administration & Research and Innovation Center (FIZ) | 137643 | 21428 |

## **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 | 1434789 | 489483 | Emissions from our production network (car and motorcycle production). |
| 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**

0.000141

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

51887708

### **Metric denominator**

p.km

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

369000000000

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

-2

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

2460000

### **Vehicle lifetime in years**

15

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

10000

### **Load factor**

1

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

Changes: Since 2007 BMW Group’s Efficient Dynamics (ED) is a comprehensive technologic approach for the consistent reduction of fuel consumption and emissions in the standard configuration of all cars of the BMW Group. It includes both highly-efficient automobiles with gradually refined combustion engines and BEVs / PHEVs. In 2017 we offered plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman as well as the battery electric vehicle BMW i3 and the plug-in hybrid vehicle BMW i8. We sold 103,080 electrified vehicles worldwide (BEVs: 31,482; PHEVs: 71,598), a 65.6% increase when compared to 2016, and led e.g. the market for electrified vehicles in Europe. Average fleet CO2 emissions per kilometer in the BMW Group in the core markets (EU, USA, China, Japan and Korea) fell by 2% to 141 g CO2/km (2016: 144 g CO2/km) due this strong increase. Standards / Methodologies: The emission figure is based on data of the main markets Europe (EU28), USA, China Japan and Korea, covering about 84% of our worldwide sales. By law we have to know the exact average CO2 emission figure of each car and, in consequence, for the fleet of new vehicles sold in the corresponding market (e.g. 122 g CO2 / km in EU28 in 2017), accounting for different driving cycles depending on the country and according to national legislation. The emissions intensity figure of 141 g CO2 / km (which equals to 0.000141 t CO2 / km) is calculated by multiplying the average fleet emissions (g CO2 / km) of the above mentioned markets with the corresponding sales volumes to get a sales volume weighted average emission figure. To calculate total emissions additional assumption is an average kilometrage of 150,000 km over life time (10,000 km per year, 15 years of life time). Multiplying the sales volume weighted average emission figure by 150,000 km and the total worldwide sales volume of 2,460,000 (rounded) vehicles gives the total emissions from the use phase of our cars sold in 2017 of 51,887,708 t CO2. We use 1 as load factor. This is consistent with worldwide regulations as well as with the world wide fuel economy figure as presented in company communications and our sustainability report. Furthermore we do not have precise information about the load factor of our vehicles due to customer’s privacy.

## **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 | 336747 | Decreased | 23.5 | In 2017 we further increased the amount of electricity from renewable sources and realized a 23.5% decrease in CO2 emissions. 100% of the BMW Group European sites were in 2017 delivered with electricity from renewable sources. In 2017 we purchased 1,968,526 MWh of green electricity. In 2016 we purchased 1,159,630 MWh. Assuming constant CO2 efficiency when calculating CO2 emissions for 2016 due to the change in output means to assume an additional amount of green electricity of 37,777 MWh. Furthermore, in UK last year, we just used a CO2 emission factor from the bill which included a significant share of green electricity. This year we purchased 100% green electricity in UK. To keep comparability we take into account this amount of green electricity (57,349 MWh). We find as additional amount of green electricity purchased 1,968,526 MWh minus 1,159,630 MWh minus 37,777 MWh minus 57,349 MWh which corresponds to an emission reduction of 336,747 t CO2 respectively a reduction by 23.5% (23.5%=336,747/1,430,235) with the 2016 Scope1&2 emissions of 1,430,235 t CO2. |
| Other emissions reduction activities | 13195 | Decreased | 0.9 | BMW Group systematically analyses emission reduction potentials with a special focus on the production sites owned by BMW Group and realized a 0.9 % decrease in CO2 emissions due to emission reduction activities in 2017. This corresponds to a total decrease of 13,195 t CO2 (0.9% = 13,195 / 1,430,235) with the 2016 Scope1&2 emissions of 1,430,235 t CO2. In 2017 implementation of 185 measures to improve energy efficiency of existing processes / technologies (e.g. paint shops) led to a decrease in CO2 emissions. |
| Divestment |  | <Not Applicable> |  |  |
| Acquisitions |  | <Not Applicable> |  |  |
| Mergers |  | <Not Applicable> |  |  |
| Change in output | 42261 | Increased | 3 | The increase of CO2 emissions from the BMW Group own operations of 3.0% due to the change in output is related to the increase in vehicle and motorcycle production volume (e.g. 3.1% increase in vehicle production volume) and equals to 42,261 t CO2 (3.0%=42,261 /1,430,235) with the 2016 Scope1&2 emissions of 1,430,235 t CO2. To calculate the CO2 increase from the 2016 emissions due to the change in output we assume constant CO2 efficiencies. Due to the significance of contract production, only vehicles manufactured at BMW production plants are taken into account when calculating the vehicle volume growth. Efficiency of contract production is assessed separately. |
| Change in methodology | 19304 | Increased | 1.3 | To calculate the 2017 CO2-emissions in the market based method we changed emission factors when compared to 2016. We applied the supplier electricity labelling 2016 in Germany which corresponds to an emission factor of 0.41 t CO2/MWh (2016: 0.43). Furthermore we applied in 2017 several new, slightly changed factors from the update of the VDA (German Automotive Association) emissions factors where we had no specific, market based information. To calculate the change from methodology we used these emissions factors in our 2016 calculation and find as difference between the 2016 calculation with the 2016 emission factors and the 2016 calculation with the 2017 emission factors a 1.3% increase (1.3% = 19,304 / 1,430,235) with the 2016 Scope1&2 emissions of 1,430,235 t CO2. |
| Change in boundary |  | <Not Applicable> |  |  |
| Change in physical operating conditions |  | <Not Applicable> |  |  |
| Unidentified |  | <Not Applicable> |  |  |
| Other | 5875 | Decreased | 0.4 | (1) From the energy consumed in the BMW Group operations 181,575 MWh has been used in 2017 to build new buildings and production equipment for upcoming new vehicles as well as to increase energy efficiency of our production facilities in the years to come. These contributions are not related to the 2017 vehicle production as well as to the 2017 operational efficiency. Total energy consumption in 2016 also included a contribution not related to operational efficiency of 229,983 MWh. To calculate the percentage change in CO2 emissions due to energy consumption not related to operational efficiency we calculate the difference between the corresponding emissions in 2016 and 2017 (-11,094 t CO2). (2) In 2017 BMW Group continued to expand its international production network resulting in international travel activities. One example are activities in terms of the construction of our site extension in Shenyang, China. In addition, as a consequence of a continuously increased variety of vehicle models and the development of new technologies the number of employees increased by 4.2% from 2016 to 2017. Correspondingly CO2 emissions through travel with company owned vehicles and planes increased by 5.219 t CO2 when compared to 2016. Both effects as described in (1) and (2) lead to a decrease in CO2 emissions of 0.4% (0.4%= 5,875 / 1,430,235). |

## **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 | Yes |
| Generation of electricity, heat, steam, or cooling | Yes |

## **C8.2a**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Heating value** | **MWh from renewable sources** | **MWh from non-renewable sources** | **Total MWh** |
| Consumption of fuel (excluding feedstock) | HHV (higher heating value) | 225039 | 3020833 | 3245872 |
| Consumption of purchased or acquired electricity | <Not Applicable> | 1994629 | 593780 | 2588409 |
| Consumption of purchased or acquired heat | <Not Applicable> | 23216 | 385519 | 408735 |
| Consumption of purchased or acquired steam | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired cooling | <Not Applicable> | 1095 | 0 | 1095 |
| Consumption of self-generated non-fuel renewable energy | <Not Applicable> | 381 | <Not Applicable> | 381 |
| Total energy consumption | <Not Applicable> | 2244360 | 4000132 | 6244492 |

## **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 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)**

Diesel

### **Heating value**

HHV (higher heating value)

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

196427

### **MWh fuel consumed for the 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**

0

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

Motor Gasoline

### **Heating value**

HHV (higher heating value)

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

169880

### **MWh fuel consumed for the 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**

0

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

Natural Gas

### **Heating value**

HHV (higher heating value)

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

2624557

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

<Not Applicable>

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

1752011

### **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**

872546

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

Landfill Gas

### **Heating value**

HHV (higher heating value)

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

224819

### **MWh fuel consumed for the 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**

224819

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

Fuel Oil Number 1

### **Heating value**

HHV (higher heating value)

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

4450

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

<Not Applicable>

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

4450

### **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

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

Jet Gasoline

### **Heating value**

HHV (higher heating value)

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

25519

### **MWh fuel consumed for the 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**

0

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

Wood

### **Heating value**

HHV (higher heating value)

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

220

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

<Not Applicable>

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

220

### **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

## **C8.2d**

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

### **Diesel**

### **Emission factor**

2.66

### **Unit**

kg CO2 per liter

### **Emission factor source**

Internal specification (the emission factor depends e.g. on the fuel quality and therefore has to be specified)

### **Comment**

### **Fuel Oil Number 1**

### **Emission factor**

0.27

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

This is an averaged emission factor for our production network. We use in our calulations country specific emissions factors from the Association of the German Automotive Industry (VDA) in its newest version. However, for oil and gas these emission factors do not vary significantly from country to country.

### **Comment**

### **Jet Gasoline**

### **Emission factor**

0.07

### **Unit**

metric tons CO2 per GJ

### **Emission factor source**

Emission factors as given by the German Emissions Trading Authority (DEHSt)

### **Comment**

### **Landfill Gas**

### **Emission factor**

0

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

We treat landfill gas used in our combined heat and power plant in Spartanburg (USA) as biogas with a corresponding Association of the German Automotive Industry (VDA) emission factor of 0.

### **Comment**

### **Motor Gasoline**

### **Emission factor**

2.38

### **Unit**

kg CO2 per liter

### **Emission factor source**

Internal specification (the emission factor depends e.g. on the fuel quality and therefore has to be specified)

### **Comment**

### **Natural Gas**

### **Emission factor**

0.2

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

This is an averaged emission factor for our production network. We use in our calulations country specific emissions factors from the Association of the German Automotive Industry (VDA) in its newest version. However, for oil and gas these emission factors do not vary significantly from country to country.

### **Comment**

### **Wood**

### **Emission factor**

0

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

We use in our calulations the emissions factor for biomass as given in the latest version of the Association of the German Automotive Industry (VDA) emissions factors.

### **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 | 361772 | 361772 | 58609 | 58609 |
| Heat | 2150109 | 2150109 | 82645 | 82645 |
| 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**

Energy attribute certificates, Guarantees of Origin

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

Solar PV

Wind

Hydropower

Biomass (including biogas)

Other low-carbon technology, please specify (Landfill gas)

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

1768115

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

0

### **Comment**

BMW Group purchased guarantees of origin for 1,768,115 MWh of 100% green electricity. RWE, the balance group manager in Germany, delivers electricity to the BMW Group locations in Germany. ENAMO and Verbund AG are the electricity suppliers for our engine plant in Steyr (Austria). In Steyr 100% of electricity purchased is from renewable sources. In UK Engie delivered BMW Group with 100% renewable electricity backed by Renewable Energy Guarantees of Origin (REGOs).

### **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**

Biomass (including biogas)

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

23216

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

0

### **Comment**

Fernwärme Steyr GmBH contractually guarantees to distribute heat generated to 100% from the Biomass-KWK-Power Plant of Bioenergie Steyer, Ramingsdorf, to the BMW AG. In 2017 the heat distributed amounted to 23,216 MWh.

### **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**

Wind

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

26103

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

0

### **Comment**

Electricity from four on-site wind turbines is directly used in the Leipzig plant in Germany. In 2017 the wind turbines produced 26,103 MWh of electricity.

### **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**

Other low-carbon technology, please specify (Düker drainage pipe systems )

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

1095

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

0

### **Comment**

A total amount of 1,095 MWh of community cooling is delivered from Stadtwerke Munich (municipal utilities) to the Central Administration & Research and Innovation Center (FIZ), using nearsurface ground water.

### **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**

Biomass (including biogas)

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

22411

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

0

### **Comment**

In Rosslyn (South Africa) a biogas-powered twin-unit power station started operation and deliverd 22,411 MWh of electricity via a direct line. It is operated by the new independent provider Bio2Watt. The biogas used comes from recycled waste from cattle ranches and chicken farms as well as food waste.

### **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

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

381

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

0

### **Comment**

Electricity from company owned photovoltaic systems (381 MWh) is produced in our production sites in Spartanburg (USA), Chennai (India) and Leipzig (Germany).

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

Power Purchase Agreement (PPA) without energy attribute certificates

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

Wind

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

178000

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

0

### **Comment**

In China for our production sites in Shenyang a power purchase agreement with an electricity supplier has been signed to deliver 178,000 MWh produced from wind mills.

## **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**

0.000122

### **Metric numerator**

tCO2

### **Metric denominator**

Use phase: Vehicle.km

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

17514183

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

143666250000

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

-1.6

### **Please explain**

The metric figure corresponds to BMW Group fleet averaged emissions in EU28. When expressed in the usual form as reguired by regulation in g CO2/km we find from the nominator and denominator 122 g CO2/km. We report this emission figure as one of BMW Groups key financial and non-financial performance indicators in the annual report. The fleet-wide deployment of Efficient Dynamics technologies and the increasing proportion of electrified automobiles are effectively reducing vehicle CO2 emissions. CO2 emissions from the vehicle fleet sold in Europe (EU-28) decreased slightly in the year under report to 122 g CO2 / km (2016: 124 g CO2 / km; – 1.6 %).

## **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

### **Technology**

Other, please specify (Number of PHEVs and BEVs (xEVs))

### **Metric figure**

103080

### **Metric unit**

Units

### **Explanation**

It is our goal to create solutions and innovations that inspire our customers. Strategy NUMBER ONE > NEXT is the path to the BMW Group’s success over the long-term. It provides a roadmap for our transformation towards sustainable and digital mobility. Our future is electric. The BMW Group develops electric vehicles that combine the advantages of sustainable mobility with a new driving experience for customers. In 2017 we offered plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman as well as the battery electric vehicle BMW i3 and the plug-in hybrid vehicle BMW i8. We sold 103,080 electrified vehicles worldwide (BEVs: 31,482; PHEVs: 71,598), achieved a 65.6% increase in electrified vehicles sold compared to 2016 (2016: 62,255) and led e.g. the market for electrified vehicles in Europe with a market share of 21%. We set clear goals for sustainable mobility: More than 140,000 electrified vehicles sold in 2018. A total of half a million electric vehicles and plug-in hybrids on the roads by the end of 2019. 25 electrified models, 12 of them pure electric, by 2025 with an expected share in our newly sold vehicle fleet between 15 and 25%.

## **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**

January 1 2017

### **Investment end date**

December 31 2017

### **Investment area**

R&D

### **Technology area**

Other, please specify (drivetrain, electrification, services)

### **Investment maturity**

Large scale commercial deployment

### **Investment figure**

6108000000

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

61-80%

### **Please explain**

According to CDP low carbon investments contribute to ensure that the global average temperature increase above preindustrial level stays below 2°C. In the transition phase efficiency increase in parallel to alternative technologies are needed to achieve this. BMW Groups R&D expenditures in 2017 were 6.1 billion €. Part of it goes into the further development of Efficient Dynamics (ED) technologies which are standard in our vehicles. These include efficient engines / gearboxes, optimized aerodynamics, light-weight design, ECO PRO mode, proactive driving assistant or Auto Start Stop function and energy recovery. Our intelligent generator management system utilizes the engine's thrust phases to convert kinetic energy into electrical power. In the next few years BMW Group will e.g. roll out 48 V systems in medium and larger vehicles, at the moment under development, to increase the recovery potential through a more efficient electrical system to achieve a CO2 reduction of 5 – 7 %. We develop scalable modular electric construction kits to be able to fit all model series with any type of drivetrain. All our brands will gradually be electrified. Several models are under development, e.g. in 2019 a battery-electric MINI, in 2020 the first fully electric model from the core BMW brand, the X3, followed in 2021 by the iNEXT. In 2025 our portfolio will consist of 25 electrified models (12 fully electrified) with an expected share of BEVs/PHEVs of 15-25%. Mobility services enable sustainable mobility patterns as well as connected and automated vehicles. This includes our car-sharing services DriveNow and ReachNow (on-demand mobility services), our digital parking service ParkNow and digital networking BMW Connected Services. Those services help to find e.g. the fastest/most efficient routes and simplify the search for a parking place which safes a significant amount of fuel. Sustainable mobility and autonomous driving go hand in hand. We will be launching the next major step in autonomous driving in the iNEXT in 2021. To reach our targets for automated and networked vehicles by 2021, existing alliances e.g. with MobilEye or Intel were deepened. Automated and digitally networked vehicles have the potential to significantly reduce the number of accidents and traffic congestion and reduce emissions. This applies especially when using electrification.

### **Activity**

Light Duty Vehicles (LDV)

### **Investment start date**

January 1 2017

### **Investment end date**

December 31 2021

### **Investment area**

Equipment

### **Technology area**

Electrification

### **Investment maturity**

Full/commercial-scale demonstration

### **Investment figure**

200000000

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

81-100%

### **Please explain**

According to CDP low carbon investments contribute to ensure that the global average temperature increase above preindustrial level stays below 2°C. In the transition phase efficiency increase in parallel to alternative technologies are needed to achieve this. BMW Group invests in various ways in efficiency and new technologies. This would create a long list of projects. E.g. in 2018 alone we are investing again more than €1 billion in our German sites to upgrade and prepare them for electric mobility. Instead of creating long lists we focus here on one important example, namely the investment in a new competence centre for battery cells in Munich: The BMW Group continues to focus on the implementation of its electro-mobility strategy, with the company concentrating all its technological expertise relating to battery cells at a new competence centre. This interdisciplinary competence centre aims to advance battery cell technology and introduce it into production processes. The company will invest a total of 200 million euros in the location over the next four years, creating 200 jobs. The centre will open in early 2019. We will be concentrating all our in-house expertise along the battery-cell value chain at our new high-tech competence centre. International experts working in the new development labs and facilities will conduct important research to refine cell chemistry and cell design. We will focus on further improvements in battery performance, lifespan, safety, charging and also costs. By producing battery-cell prototypes, we can analyse and fully understand the cell’s value-creation processes. With this build-to-print expertise, we can enable potential suppliers to produce cells to our specifications. The knowledge we gain is very important to us, regardless of whether we produce the battery cells ourselves, or not.

## **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**

[BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)

[CDP Verification Template\_BMW SVR 2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/UQRV5HVWs06VjtskFYPCYA/CDPVerificationTemplateBMWSVR2017.pdf)

[PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf)

### **Page/ section reference**

Page 211-212 / Sustainable Value Report 2017, Appendix: Independent Practitioner’s Limited Assurance Report (assured scope 1 & 2 & 3 emissions are found on page 92). In addition to the "Independent Practitioner’s Limited Assurance Report" we attached the independent Practitioner’s Limited assurance report in German as well as the updated "CDP Verification Template".

### **Relevant standard**

ISAE3000

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

100

[BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)

[CDP Verification Template\_BMW SVR 2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/UQRV5HVWs06VjtskFYPCYA/CDPVerificationTemplateBMWSVR2017.pdf)

[PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf)

### **Scope**

Scope 2 location-based

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

Annual process

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

Complete

### **Type of verification or assurance**

Limited assurance

### **Attach the statement**

[BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)

[CDP Verification Template\_BMW SVR 2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/UQRV5HVWs06VjtskFYPCYA/CDPVerificationTemplateBMWSVR2017.pdf)

[PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf)

### **Page/ section reference**

Page 211-212 / Sustainable Value Report, Appendix: Independent Practitioner’s Limited Assurance Report (assured scope 1 & 2 & 3 emissions are found on page 92. Location based Scope2 emissions can be found in Footnote 3). In addition to the "Independent Practitioner’s Limited Assurance Report" we attached the independent Practitioner’s Limited assurance report in German as well as the updated "CDP Verification Template".

### **Relevant standard**

ISAE3000

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

100

[BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)

[CDP Verification Template\_BMW SVR 2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/UQRV5HVWs06VjtskFYPCYA/CDPVerificationTemplateBMWSVR2017.pdf)

[PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf)

### **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**

[BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)

[CDP Verification Template\_BMW SVR 2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/UQRV5HVWs06VjtskFYPCYA/CDPVerificationTemplateBMWSVR2017.pdf)

[PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf)

### **Page/ section reference**

Page 211-212 / Sustainable Value Report, Appendix: Independent Practitioner’s Limited Assurance Report (assured scope 1 & 2 & 3 emissions are found on page 92). In addition to the "Independent Practitioner’s Limited Assurance Report" we attached the independent Practitioner’s Limited assurance report in German as well as the updated "CDP Verification Template".

### **Relevant standard**

ISAE3000

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

100

[BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)

[CDP Verification Template\_BMW SVR 2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/UQRV5HVWs06VjtskFYPCYA/CDPVerificationTemplateBMWSVR2017.pdf)

[PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf)

## **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- all relevant categories

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

Annual process

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

Complete

### **Attach the statement**

[BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)

[CDP Verification Template\_BMW SVR 2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/UQRV5HVWs06VjtskFYPCYA/CDPVerificationTemplateBMWSVR2017.pdf)

[PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf)

### **Page/section reference**

Page 211-212 / Sustainable Value Report, Appendix: Independent Practitioner’s Limited Assurance Report (assured scope 1 & 2 & 3 emissions are found on page 92). In addition to the "Independent Practitioner’s Limited Assurance Report" we attached the independent Practitioner’s Limited assurance report in German as well as the updated "CDP Verification Template".

### **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?**

[BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)

[CDP Verification Template\_BMW SVR 2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/UQRV5HVWs06VjtskFYPCYA/CDPVerificationTemplateBMWSVR2017.pdf)

[PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf)

|  |  |  |  |
| --- | --- | --- | --- |
| **Disclosure module verification relates to** | **Data verified** | **Verification standard** | **Please explain** |
| C7. Emissions breakdown | Year on year change in emissions (Scope 1 and 2) | ISAE3000 | Please read Page 211-212 / Sustainable Value Report, Appendix: Independent Practitioner’s Limited Assurance Report where it is stated that the whole Sustainable Value Report (SVR) has been verified in limited assurance. This includes all statements as well as all figures. We report e.g. since several years year by year Scope1, 2, 3 emission figures, compare them to previous years as well as with respect to our targets. Assured Scope1 & 2 & 3 from 2013 until 2017 can be found on page 92 of the SVR2017.  [BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)  [PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf) |
| C8. Energy | Renewable energy products | ISAE3000 | Please read Page 211-212 / Sustainable Value Report, Appendix: Independent Practitioner’s Limited Assurance Report where it is stated that the whole Sustainable Value Report (SVR) has been verified in limited assurance. This includes all statements as well as all figures. We report e.g. since several years year by year Scope1, 2, 3 emission figures, compare them to previous years as well as with respect to our targets. Assured Scope1, 2, 3 emission figures from 2013 until 2017 can be found on page 92 of the SVR2017. Our market based emissions are verified and with them all renewable energy products.  [BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)  [PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf) |
| C12. Engagement | Other, please specify (Supplier engagement) | ISAE3000 | Please read Page 211-212 / Sustainable Value Report, Appendix: Independent Practitioner’s Limited Assurance Report where it is stated that the whole Sustainable Value Report (SVR) has been verified in limited assurance. This includes all statements as well as all figures. We report e.g. from p.105 to p.113 on our supply chain engagement. P.25 gives an overview on our stakeholder dialogue activities. An overview of our stakeholder engagement can be found from p.25 to p.28.  [BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)  [PwC Prufvermerk \_BMW\_SVR 2017\_20180226\_signed.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/xAcjslmCike-3t2XWt5vzA/PwCPrufvermerkBMWSVR201720180226signed.pdf) |

## **C11. Carbon pricing**

## **C11.1**

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

Yes

## **C11.1a**

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

EU ETS

## **C11.1b**

### **(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**

49.7

### **Period start date**

January 1 2017

### **Period end date**

December 31 2017

### **Allowances allocated**

186930

### **Allowances purchased**

0

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

310843

### **Details of ownership**

Other, please specify (Own facilities operated & own aircrafts)

### **Comment**

The above mentioned allowances (186,930) are those allocated in the reporting year 2017. The difference between the verified emissions of 310,843 metric tonnes CO2e in the reporting year and the allocated allowances in the reporting year are covered with allocated allowances from the past years which we have saved due to our CO2 efficient operations. Therefore there was no need to purchase additional allowances in the reporting year.

## **C11.1d**

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

The strategy of BMW Group for complying with the EU ETS is first and foremost the continuous reduction of CO2-emissions through our Clean Production strategy. BMW Group is continuously improving CO2 emission efficiency. Our traget is a 45% reduction of energy consumption per vehicle produced in comparison with 2006. We want to be the leading OEM in renewable energy usage in production and the value-added chain. The BMW Group aim is to have each production site worldwide being powered by the most ecologically and economically sustainable energy resource available. The USA plant in Spartanburg for example, covers around 50 % of its fuel needs by utilizing gas recovered from a nearby landfill site. Our target is a fully renewable energy supply (Scope1 & 2) of all our facilities until 2050. In 2017 we made another step in this direction. Total emissions in production and administration, including BMW Group owned aircrafts and vehicles, amounted to 1,135,983 tons of CO2 (2016: 1,430,235 tons). This is a 21% reduction in CO2 emissions in spite of an increase in output (in particular a 3.1% increase in vehicle production volume in our own production facilities). Key measures to increased CO2-efficiency were to increase energy efficiency and adopt our energy mix. Electricity, heat and cooling from renewable sources added in 2017 to more than 2,200 GWh (2016: 1,200 GWh).

To ensure compliance with the EU ETS all allowances of our European production sites are pooled and handled by a central function “environmental protection and sustainability”. As a benefit of our group wide targets for the production network to reduce the key indicator energy consumption per vehicle produced we profit from allowances saved through our performance in previous years. In the 3rd phase of the ETS (since 2013) EUA allocation is reserved merely for heat and will face a reduction from 80% in 2013 to 30% in 2020. Due to the economic crisis in recent years and the general economic outlook the price for EUAs still was low at about 5-7 € in 2017 but is now on level of 15-16€ per tonne and will further increase in the following years. The exposure of the BMW Group is minimized due to the vast advancements in resource and energy efficiency. Nevertheless the BMW Group used "banking of allowances" for the 3rd Phase of the ETS.

## **C11.2**

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

No

## **C11.3**

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

Yes

## **C11.3a**

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

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

Drive energy efficiency

Drive low-carbon investment

Identify and seize low-carbon opportunities

### **GHG Scope**

Scope 1

Scope 2

Scope 3

### **Application**

BMW Groups core business is the production and purchase of vehicles. The carbon price is applied Company-wide for all vehicle projects. From the EU fleet regulation until 2020 a price tag for investments in technical measures to reduce CO2 emissions of our products (abatement costs of CO2) in terms of opportunity costs can be derived on the basis of penalty cost. Missing the overall target by 1g leads to a price tag of 475 € per t and vehicle. We use a bonus / malus system in all vehicle business case (BC) calculations. We defined a g CO2/km target line. E.g. BEVs have zero g CO2/km emissions and get a significant bonus which contributes positively to their BC. In contrary the BC of conventional cars above the target line is negatively impacted by a malus. Due to this “internal fee”, investments are driven into low carbon products (BEVs, PHEVs) and efficient conventional cars.

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

475

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

A single price is used for BMW Groups core business of producing and purchasing vehicles. It is used in the business calculations of all vehicle projects.

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

Internal fee

### **Impact & implication**

Failing CO2 compliance by 1 g CO2 / km in 2020 (for the EU car fleet the limit is 95 g CO2 / km) the company must pay 95€ per 1 g CO2 / km for each vehicle sold. Using an averaged mileage of 200.000 km over vehicle lifetime, consistent with the Association of the German Automotive Industry (VDA) assumption, 1 g CO2/km corresponds over lifetime to 0.2 tons CO2. Therefore, if marginal costs per vehicle to reduce CO2 fleet emissions by another gram CO2 / km exceed 95 € / 0.2 t = 475 € / t then opportunity costs of paying the fine would be advantageous from an economical perspective. However, paying fines instead of complying with regulations is no option for the BMW Group. We use this price tag as “internal fee” to steer our investments into efficient dynamics technologies and low carbon products (BEVs, PHEV): Efficient Dynamics technologies are standard in all BMW Group cars. These include efficient engines/ gearboxes, optimized aerodynamics, intelligent energy management, light-weight design, tires with reduced rolling resistance, energy recovery, ECO PRO mode, active coasting and proactive driving assistant or Auto Start Stop function. In 2017 we offered plug-in hybrid drivetrains for the 2, 3, 5 and 7 Series, the X5 and the MINI Countryman as well as the battery electric vehicle BMW i3 and the plug-in hybrid vehicle BMW i8. We sold 103,080 electrified vehicles worldwide (BEVs: 31,482; PHEVs: 71,598), achieved a 65.6% increase in electrified vehicles sold compared to 2016 (2016: 62,255) and led e.g. the market for electrified vehicles in Europe with a market share of 21%. Our target for 2018 is to sell more than 140,000 PHEVs/BEVs. In 2019 we will launch BEV version of the MINI and in 2020 of the BMW X3. In 2025 we expect a 15-25% share of BEVs / PHEVs. Furthermore we offer e.g. connectivity services to find the fastest/most efficient routes and simplify the search for a parking place. All this results in reduced fuel & energy consumption and so GHG emissions & pollution reduction. We were e.g. able to reduce CO2 emissions of our newly sold vehicles in Europe (EU-28) by around 42% between 1995 and 2017. Fleet averaged emissions in 2017 were 122 g CO2/km (EU-28). The fleet averaged CO2 emissions per kilometer worldwide decreased in 2017 by 2 % to 141 g CO2/km compared to 2016 (144 g CO2/km). PHEVs and BEVs contributed significantly.

## **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**

Engagement & incentivization (changing supplier behavior)

### **Details of engagement**

Run an engagement campaign to educate suppliers about climate change

Climate change performance is featured in supplier awards scheme

Other, please specify (Part of the supplier nomination process)

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

41

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

80

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

20

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

Rationale for the coverage of our engagement: In the period under review, we initiated the process to identify and assess sustainability risks at 4,886 nominated and potential locations of suppliers and sub-suppliers (2016: 4,112) worldwide. These suppliers were selected because each of them have a significant tendering volume (each >2 Mio. € for BMW production material suppliers and >10 Mio. € for non-production material suppliers). “% of suppliers by number”: From these numbers we find as “% of suppliers by number” assessed in the reporting year 2017 about 41% of all suppliers (4,886/11,994). This represents about 80% of our procurement spends. “% Scope 3 emissions as reported in C6.5”: We performed an environmental profit and loss calculation for a car representative for our vehicle fleet (3 series, about 9% of sales). Based on the economic model of multiregional input- output analysis as well as quality-assured data of international environment and resource statistics we analyzed beside other impact categories GWP. Following the corresponding impact pathways until the so called “endpoints” human health, impact on nature and human made environment we derived price tags (external costs). Within the model supply chain impact has been assessed for direct suppliers (Tier 1) as well as for sub suppliers (Tier 2 – Tier n). Our Tier1 suppliers cause roughly 20% of CO2 emissions of the emissions from “Purchased goods and services” and “Upstream transportation and distribution”. The described “Engagement & incentivization” is primarily with our Tier1 suppliers. Therefore “% Scope 3 emissions as reported in C6.5” are about 20%.

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

Impact of engagement: All direct suppliers (production material), about 4,900 in 2017, and indirect suppliers with relevant contract volumes have to fill out a questionnaire. Each potential new supplier must consider our sustainability requirements in their quotation. If they don’t fulfill key requirements they will not be nominated. One key contractually fixed demand is to implement a certified Environmental Management System (EMS) in accordance with ISO 14001. Therefore one impact of engagement is that all production suppliers have implemented a certified EMS before start of production. Energy consumption and CO2 emissions have to be key improvement targets. We are member of the CDP Supply Chain Program. Suppliers who took part made up 77 % of our purchasing volume in 2017 (BMW Groups key suppliers). A competitive comparison of the scoring results is played back during annual supplier development interviews on top management level. Energy, CO2 (and water) efficiency improvements are considered there. In case performance is significantly behind our expectations we engage to positively impact on suppliers resource efficiency, e.g. by knowledge sharing, and agree on improvement measure. We reach e.g. agreements with key suppliers to increase their share of renewable energy. Measures of success: We expect and check installation of a certified EMS latest at start of production (SOP) and submission of a corresponding certificate. Therefore one key performance indicator is: 100% of production material suppliers have an assured EMS latest at start of production. Energy, CO2 (and water) efficiency trends are assessed and are part of our suppliers rating in our supplier performance and competency management system. This is assessed with respect to our own efficiency improvements (we reduced energy consumption and GHG emission per vehicle produced by 36.5% respectively 61.0 % between 2006 and 2017). Within the CDP supply chain program we measure the CDP rating (the average score of our participating suppliers is C) as well as integration of climate change measures in the strategy, targets set or share of renewable energies. We measure success against our target: 60% of our suppliers participating in the CDP Supply Chain Programme have at least a B rating in the CDP scoring system by 2020.

### **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)

### **Size of engagement**

100

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

100

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

Rationale for the coverage of our engagement: “Size of engagement”: Since 2007 BMW Group’s Efficient Dynamics (ED) is a comprehensive technologic approach for the consistent reduction of fuel consumption and emissions in the standard configuration of cars of the BMW Group. It includes both highly-efficient automobiles with gradually refined combustion engines and all-electric cars and low-emission plug-in hybrids. ED in different levels of detail is explained on the BMW Group homepage and in main publications such as the annual report and the sustainability report, as well as in communication channels that reach big audiences (e.g. TV spots, marketing campaigns). BMW Group is obliged by many fleet customers to fill out the ECOVADIS questionnaire as a prerequisite for tendering processes or is asked via CDP supply chain to explain its approach to fuel efficiency and zero emission mobility. To our customers we explain efficient dynamics technologies or BEV/PHEV powertrains as well as e.g. connectivity services on the corresponding BMW Group pages where our customers can inform themselves about technical features of the specific vehicle under interest. On launch events, in product campaigns as well as e.g. in product marketing guidelines we address ED features. We include also environmental certificates (e.g. BMW i3/i8, 740 Li/Le iPerformance, 530 iA/530e iPerformance) containing externally audited life cycle comparisons between new models with its predecessors and between plug-in hybrid and combustion engine cars. Furthermore ED features are included in sales catalogues at the point of sale. Because climate related information is shared via all these channels we assume that 100% of our customers can access these information. This is why we selected 100% in “Size of engagement”. “% Scope 3 emissions as reported in C6.5”: In correspondence to the Seize of engagement being 100% we also cover 100% of our scope3 emissions from the use phase.

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

Impact of engagement: In 2017 BMW Group sold 103,080 electrified vehicles worldwide (BEVs: 31,482; PHEVs: 71,598), a 65.6% increase when compared to 2016. We led e.g. in the reporting year the market for electrified vehicles in Europe with a 21% market share. Average fleet CO2 emissions per kilometer in 2017 in the core markets (EU, USA, China, Japan and Korea) fell by 2% to 141 g CO2/km (2016: 144 g CO2/km). PHEV and BEV contributed significantly. The number of users of our car sharing services DriveNow and ReachNow increased in 2017 by 29.9% to 1,108,000 users (2016: 853,000). DriveNow is e.g. one of the strongest drivers of electro mobility in Germany. To date, around 334,000 customers have driven some 16.4 million carbon-free kilometers using DriveNow’s BMW i3 electric vehicles. Measures of success: We measure market success in each market and analyze market shares, e.g. of our BEVs and PHEVs (xEVs). We measure the worldwide number of xEVs as well as e.g. customers of our car sharing services DriveNow or ReachNow. Various aspects of sustainability form part of the customer surveys, on products and services as well as on BMW Groups sustainability performance. We conduct surveys on an annual basis in order to optimize our products and services according to the needs of our customers. We continuously establish customer satisfaction on the basis of uniform global standards, assessing among many other things e.g. if expectations on fuel economy or services (e.g. real time traffic information, searching services for parking place) are met. We measure sustainability performance also by rating results such as DJSI or CDP. We measure fuel economy in all main markets. Financial indicators, in particular the EBIT margin in our core automotive segment, is a measure of meeting customer’s needs.

## **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** |
| Other, please specify (CO2-based vehicle taxations) | Support with major exceptions | (1) Name of legislation: CO2-based vehicle taxations have been introduced e.g. in 20 out of 28 EU member states as well as for example in South Africa or Singapore and are under discussion in South-Korea or China and other countries as e.g. Thailand. A focus in 2017 was our engagement about the WLTP introduction and related taxation systems in the EU respectively the 20 member states with CO2 based taxation. (2) Geographies in which legislation applies: EU respectively the 20 member states with CO2 based taxations such as Germany or UK. (3) Type of engagement: The BMW Group is committed to enhance the fuel efficiency of its products and strongly supports the introduction of CO2-based vehicle taxation worldwide putting a price tag on CO2 emissions emitted by vehicles in the use phase but does not support a tax on engine displacement or retail price of vehicles as existent in some European countries. Beside these major exceptions already fixed in the taxation systems, which we continuously discuss, our focus in 2017 was again on the way of introducing the WLTP driving cycle as basis for taxation. BMW Group argued for a “one shot” introduction without additional costs for vehicle owners, where the taxation base is switched to WLTP at one single point in time for all vehicles. We engage in worldwide markets in a similar way in a dialogue with political stakeholders and governmental bodies as well as NGOs and scientific institutions to promote CO2-based taxation and product labelling. In 2017 various consultations took place with the EU commission and e.g. German or UK governmental bodies (like the corresponding ministries for Environment) about the WLTP introduction and related taxation systems. | BMW Group strongly supports the introduction of CO2-based vehicle taxation worldwide. In our engagement we do not seek a fundamental debate about the “if” of taxation of automobiles but on alternatives “how” to do it best. We promote putting a “price tag” on CO2 use phase emissions through governments but do not support a tax on engine displacement or retail price of vehicles which does not incentivize highly efficient vehicles with innovative technologies for CO2 emission reduction within the same engine displacement class. This is giving a clear signal to customers to replace an old inefficient vehicle by a new efficient one and to comparing vehicles of one category in terms of efficiency. This is all the more important since experience in major markets like UK, France and Netherlands shows that the effect of changes in taxation is much stronger than a purely economic analysis would indicate. We argue for a “one shot” switch to the WLTP as taxation base without introduction scenarios e.g. adopted to each OEMs model line replacements to keep equality of competition respectively comparability. Furthermore there should be no additional costs for vehicle owners just because the test cycle is changed. |
| Other, please specify (CO2 fleet regulation) | Support with major exceptions | (1) Name of legislation: We address CO2 fleet regulations in markets such as the European Union (EU28), USA, China or South Korea. A focus in 2017 was our Engagement in the EU28 on the CO2 fleet regulation for the time period beyond 2021 (2) Geographies of legislation: The mentioned legislations apply to the member states of the EU28 (3) Type of engagement: The regulations contain weight based CO2 targets for the OEMs and key flexibility based on eco- innovations. The EU commission issued a proposal in November 2017 indicating target levels off -15% for 2025 and -30% for 2030 versus 2021 WLTP fleet average. Additionally they proposed a benchmark approach for zero and low emission vehicles (<50g/km in WLTP) of about 15% in 2025 and about 30% in 2030. In case of over compliance by individual OEMs a bonus up to 5% on the corresponding CO2 target level will be granted as an incentive to spur up the market introduction of those vehicles. BMW Group agrees on the basic principles of a perceptual reduction and a bonus system within a benchmark. However, as future target compliance is heavily depending on the market success of electro mobility and customer acceptance is still at very low level on EU average we do not anticipate a linear market development for those vehicles. Therefore, BMW Group argued in 2017 e.g. in several discussions with the European commission, that this needs to be reflected in the target level. Furthermore, the lead time for an intermediate target in 2025 is too short due to the introduction of the new WLTP test cycle and in particular the market uncertainty regarding electro mobility wherefore we argued only for a target in 2030. | Future target compliance is heavily depending on the market success of electro mobility. Customer acceptance is still at very low level on EU average. So we do not anticipate a linear market development for those vehicles. To cover the market uncertainty of electro mobility we suggested, consistent with the Association of the German Automotive Industry (VDA) and the European Automobile Manufacturers Association (ACEA), a conditionality principle taking into account the real market uptake of electrified vehicles and the real deployment of charging infrastructure across EU Member States with a target only in 2030. Depending on the real development the 2030 target level with a base assumption of a -20% reduction with respect to the WLTP level in 2021 should be adopted up- or downwards accordingly. On the other hand we support a bonus system but argue that a higher recognition of PHEV should be granted in the benchmark calculation. |
| Other, please specify (low Carbon mobility) | Support | (1) Name of legislation: Development of framework conditions to reach the targets of the German Federal Government's National Development Plan for Electric Mobility including the target of “a million electric vehicles on the road in Germany by 2020”. (2) Geographies in which legislation applies: Germany. (3) Type of engagement: We have contributed to the „National Platform Electromobility“(NPE), established by the German Government GG, since May 2010. The NPE, a body comprising highly reputed experts from industry, science and civil society, analyses the developments in the field electro mobility and formulates recommendation on how the targets of the “national development plan electro mobility” can be reached. A board member of the BMW Group is co-head of the working group “Framework Conditions”. In April 2017 NPW published its roadmap for common standards until 2020, as basis for the further run-up of the PHEV and BEV market. This roadmap addresses beside others future challenges like high power charging: Vehicles as well as infrastructure should be developed for a charging power between 150 kW up to 400 kW The GG is continuously assessing various suggestions by the NPE and supporting a broad spectrum of projects. The BMW engagement in these projects addresses the remaining issues required prior to wide-scale market introduction: Increasing the range of vehicles through the installation of public fast-charging infrastructure, realization of High Power Charging, implementation of inductive charging and improving managed charging for the integration of renewable energy. The GG has already implemented several of the key measures proposed by the NPE within the electro mobility law (introduced in June 2015) and the charging pillar regulation following the EU directive 2014/94/EU (introduced in June 2016): Disadvantage compensation for the purchase of electric company cars, a 10-year vehicle tax exemption for electric cars, simplification of taxing monetary benefits from charging, a 300 Mio € funding of public infrastructure, a 600 Mio € direct purchase funding (in addition to the 600 Mio € funding of the industry) and a 100 Mio € program for public procurement.2 | BMW Group holds the position that the goal of having “a million electric vehicles on the road in Germany by 2020” will not be met in time under the current conditions with respect to the funding volume, a delayed start of the funding program, the currently unsatisfactory status of existing public charging infrastructure and the barriers for private charging opportunities in apartment houses. We recommend addressing the areas of high priority in order to increase the market appeal of electric vehicles: a broad market penetration for electric vehicles in the business sector and support for the creation of a convenient and comfortable charging infrastructure. Many measures proposed have been adopted by the German government by early 2015 in the electro mobility law (among them are measures like special labelling, use of bus lanes, privileged parking and specific access to restricted areas) and in the governmental funding program from mid of 2016 (direct purchase incentives, funding of public charging infrastructure and public procurement program). Besides these special rights and funding programs additional legislative measures for removing the barrier to electric mobility in everyday life are proposed especially in the field of building legislation and energy cost regulation. Only if there is a holistic approach for the energy and transport sector a successful integration of electro mobility can be achieved. The speed of implementing the charging infrastructure program and though visibility towards the customer will determine the acceptance of electro mobility at the point of sale. |

## **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**

Association of the German Automotive Industry (VDA)

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

Consistent

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

The VDA nationally and internationally promotes the interests of the entire German automotive industry. VDA addresses a wide spectrum, including safety, quality and sustainability issues such as environmental protection in production, fuel efficiency and alternative drive technology as well as e-mobility. VDA promotes corresponding policies to these issues which reflect the opinion of the member companies about most appropriate actions and measures. An example of particular interest is the post 2020 CO2 regulation in the EU. The existing regulation is aligned solely to the technical efficiency of new cars. CO2 values on the street, however, are influenced by many different factors. These include vehicle efficiency, kilometres travelled, driving style or the CO2 content of energy carriers. A convincing and comprehensive political strategy must consider all factors. Further reduction of fleet averaged CO2-emissions is one component not in question by the VDA. However the 95 g CO2/km target in 2020 is already only achievable with great and increasingly expensive technical efforts and, in particular for premium manufacturers, electrification. A linear continuation of reduction requirements after 2020 means that car prices significantly increase and conventional drive trains have to be replaced by electric drive trains. In consequence cars get more expensive what could prevent clients to buy new efficient cars. The previous purely supply-side regulatory methodology must be supplemented with an overall strategy on the demand side. The idea is to reduce CO2 emissions of all road transportation, not just those from new cars. VDA advocates measures to decrease emissions of existing fleets and proposed e.g. as instrument to incentivize decarbonisation of transportation fuels the inclusion into the Emission Trading System (“Cap and Trade”). Due to price transmission this not only effects fuel producers but also incentivizes car owners to drive fuel efficient cars and to change their driving behaviour. Concerning electric mobility VDA advocates to support electric mobility. EU and local regulations should temporarily subsidize electric mobility (e.g. bonuses / tax breaks for the purchase of e-vehicles, elimination of taxes). Charging infrastructure and measures such as special parking rights should be introduced.

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

By the constant membership in the Managing Board & Presiding Board of the association and by the regular participation in all relevant working groups. BMW Group is expressing its position in all activities, thus influencing the overall position on climate change of the VDA.

### **Trade association**

European Automobile Manufacturers Association (ACEA)

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

Consistent

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

ACEA is an advocate for the automobile industry in Europe, representing manufacturers of passenger cars, vans, trucks and buses with production sites in the EU. ACEA aspires to define and advocate the common interests, policies and positions of the European automobile industry. One “industry topic” is “environment and sustainability”. In this industry topic issues are addressed ranging from air quality, noise reduction or CSR in the supply chain to CO2 emissions from cars and alternative drivetrains and e-mobility. The post 2020 CO2 regulation in the EU is of particular interest. The current legislation is solely focused on vehicle technology. ACEA advocates for a comprehensive approach taking into account the usage of the vehicles in the existing fleet in order to accelerate further CO2 emissions reduction. Since most CO2 emissions from the existing fleet come from older cars which do not have the latest technologies ACEA sees fleet renewal incentives as well as incentivizing lower carbon fuels through an upstream ETS (fuel providers) as two effective tools to lowering emissions from the existing fleet. By 2021, the car industry will have reduced CO2 emissions by almost 42% compared to 2005. Any progress beyond 95 g/km CO2 relies heavily on growing electrification or hybridisation levels. This may not be possible considering the lack of sufficient support at EU or national levels for electrification. ACEA supports policy measures (e.g. CO2 based tax systems or charging infrastructure development) to achieve higher market shares of hybrid and electrically chargeable vehicles. In line with the EU climate package objectives, an overall effort from 2005 to 2030 is required at the level of -30% for non-ETS sectors from the 2005 baseline. With the 95 g/km target the European automobile industry is already overachieving relative to this objective. ACEA argues that the new post-2020 regime should ensure a level playing field between the industrial and transport sectors in the EU in order to distribute the regulatory burden more equally. It should reflect the client acceptance level of electric mobility.

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

By the constant membership in the ACEA Board of Directors and by the regular participation in relevant working groups. BMW Group is expressing its position in all activities, thus influencing the overall position on climate change of the ACEA.

### **Trade association**

Auto Alliance

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

Consistent

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

The Alliance of Automobile Manufacturers is the leading advocacy group for the auto industry in North America and represents 77% of all car and light truck sales in the United States. The Auto Alliance promotes constructive solutions to public policy challenges that promote sustainable mobility and benefit society in the areas of environment, energy and motor vehicle safety. “Auto Issues” of particular interest are (1) fuel economy and (2) electric readiness. (1) Fuel economy: The Alliance supports a comprehensive single, national program for fuel economy and greenhouse gas emissions, including consumer support of new, fuel efficient autos, which is critical to automakers meeting the program’s demanding targets. (2) Electric readiness: The Alliance promotes efforts to support mass market commercialization of e-vehicles. Long-term efforts to reduce dependency on foreign oil while also reducing transportation sector greenhouse gas emissions will require the mass market commercialization of electric vehicles. That includes technologies such as hybrid electrics, plug-in hybrid electrics, battery electrics, and fuel cell vehicles. Widespread consumer acceptance of these technologies will require that efforts be focused on important considerations such as: supporting infrastructure, incentives for consumer adoption, the alignment of regulatory efforts and the removal of market barriers.

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

By the constant membership in the Board of Directors and in the Executive Committee association and by the participation in relevant working groups. BMW Group is expressing its position in all activities, thus influencing the overall position on climate change of the Auto Alliance.

## **C12.3d**

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

No

## **C12.3e**

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

(i) Methods:

Overall BMW Group enters into dialogue about climate change, both in direct dialogues, panel discussions as well as in initiatives on climate change related topics. Examples in the field of e-mobility and mobility services are:

1) Engagement with academia, NGOs or governmental bodies on the introduction and incentives of BEVs and PHEVs world-wide.

2) We are an active member of the “California Plug-In Electric Vehicle Collaborative”, a panel with legislators, regulators, NGOs and other industry partners like utilities and OEMs in California.

3) Engagement with city officials, academia and local stakeholder and launch of pilot projects in two districts of Berlin and of Hamburg that allow residents to test alternative mobility solutions such as car-sharing and e-vehicles for their usefulness in everyday conditions.

(ii) Topics:

The contents of our dialogue with political NGOs or scientific organizations as well as governmental bodies are national and international legislation in the context of mitigation and adaptation, CO2-legislation and framework setting, renewables and e-mobility as well as other sustainability topics, new sustainable products, technologies and processes.

1) Our engagement for e-mobility addresses concerns with regards to potential barriers, as missing infrastructure, for a large scale market introduction in Europe reducing traffic carbon emissions.

2) The purpose of the group is to facilitate open dialogue between various stakeholders on e-mobility topics and to move the PHEV market forwards in California.

3) The two projects “Neue Mobilität Berlin” and “Firstmover Hamburg” strive to accelerate the uptake of alternative urban mobility systems (integrated mobility systems with car sharing & e-mobility) instead of the usage of private cars.

(iii) Engagement nature:

In 2017, we held stakeholder dialogues on the topic of “urban mobility” in Milan/IT, Chicago/US, Hangzhou/CN, Mexico City/MX and Delhi/IN. In the coming year, we will once again place the key topics of “digitalisation” and “urban mobility”. Apart from dialogues and active participation in multi-stakeholder initiatives and conferences, our innovations demonstrate to be viable measures against climate change on a short to long-term: Be it in conducted field trials with EVs or by series introduction of innovative solutions such as the BMW i3 and the PHEVs BMW 330e, BMW 225xe and BMW X5 xDrive40e as well as through our CO2 reduction and efficiency measures in our production sites worldwide. Correspondingly these measures are used in dialogues and stakeholder discussions as exemplary business solutions.

1) We hosted dedicated events or participated in large conferences to proactively discuss low carbon mobility (e.g. gold sponsor of the Sustainable Innovation Forum at the COP23 in Bonn in November 2017).

2) BMW Group activities in the panel include the support with information from our research, e.g. on technical solutions as “Vehicle2Grid” facilitating the supply of e-vehicles with renewable energy or supporting projects such as “BEST.DRIVE.EVER” to increase the electric car awareness as. Furthermore, BMW Group engages in working groups, such as the “Workplace Charging Working Group”.

3) Both projects first evaluated the car dependency of residents in the respective local areas and elaborated alternative and integrated mobility supplies in joint citizen workshops. During a test period “First mover” residents leave their cars. Released space is then dedicated to car sharing and urban development measures (seating furniture, greening).

(iv) Actions advocated:

Actions advocated are diverse, including provision of all our activities on future mobility solutions, e-mobility and e-mobility infrastructure. Another example are the advertisements of our business solutions to be adapted or supported e.g. by regulators or specific cities as well as by the whole transportation sector for up-scaling of solutions.

1) We advocate for the following measures to increase the market appeal of e-vehicles: a broad market penetration for electric vehicles in the business sector and support for the creation of a convenient and comfortable charging infrastructure at home, in public and at the work-place. Further actions advocated are measures like specific lanes for electric vehicles and privileged parking.

2) The panel advocates best practices to advance e-mobility in California, e.g. by dissemination of the published decision guides, reports and case studies for charging at workplaces and multi-unit dwellings through hosting or attending key events and meetings.

3) An integrated mobility supply with car sharing and the dedication of parking space for car sharing & electric vehicles is crucial for a swift and voluntary behavior change as it provides the adopters of e-mobility and sharing an advantage compared to owners of private cars (e.g. no parking place search). Urban development measures increase acceptance.

## **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?**

BMW Groups positions regarding global legislative issues arising from our engagement with policy makers at the market level is centrally coordinated in Munich. Positions are worked out with the participation of corresponding central departments, e.g. the department within the Strategy unit responsible for monitoring and further developing CO2 targets for each product line and each new vehicle project or the Strategy unit responsible for sustainability and environmental Protection, and market representatives, respectively. Moreover the vice president for government and external affairs is permanent member of the strategy/sustainability circle SC (the SC is in charge of the implementation of all sustainability activities in the departments and reports to the Sustainability Board comprising all board members). In this way all of our direct and indirect activities that influence policy are consistent with our overall climate change strategy.The BMW Group actively engages in a proactive dialogue with policy makers on mitigation and adaptation as well as environmental legislative issues using a wide variety of communication channels. We discuss policy issues with various national and international trade organizations, NGOs, scientific institutions etc. Our Representative Offices in Berlin, Brussels, Beijing, London, Washington DC, Sacramento, Tokyo, Delhi, Singapore, Mexico, Seoul, Sao Paulo and Moscow and Thailand are focal points of direct communication with political decision-makers and NGOs. In addition to major markets with a Representative Office, the BMW Group National Sales Companies are active in establishing political contacts and engage in political dialogue in the respective markets in 43 countries. The same applies to Regional Offices serving importer markets and to our manufacturing facilities. These structures and processes ensure that all engagement activities are in line with BMW Group climate change strategy.

## **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**

[Annual\_Report\_2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/YvGwsVzRO0mFmS4XBCXmLQ/AnnualReport2017.pdf)

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

### **Publication**

In mainstream reports

*We comply with the CSR reporting requirements in Section 289b Para. 3 and 315b Para. 3 HGB (German Commercial Code) through our Sustainable Value Report 2017.*

### **Status**

Complete

### **Attach the document**

[BMW-Group-SustainableValueReport-2017--EN.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GRStK3yClkqFiEV5fa0s1g/BMWGroupSustainableValueReport2017EN.pdf)

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

## **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.**

## **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 | Harald Krüger, Chief Executive Officer BMW Group (CEO) | Chief Executive Officer (CEO) |