# **Mazda Motor Corporation - Climate Change 2018**

## **C0. Introduction**

## **C0.1**

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

Company name: Mazda Motor Corporation

Founded January: 30, 1920

Headquarters: 3-1 Shinchi, Fuchu-cho, Aki-gun, Hiroshima 730-8670 Japan

Representative: Masamichi Kogai, Representative Director; President and CEO

Main business: Manufacture and sales of passenger cars and commercial vehicles

Stock Information:

Authorized: 1,200,000,000

shares Issued: 599,875,479

shares Number of shareholders: 151,191

Capital: JPY 258,957,096,762

Employees:

Unconsolidated Total: 22,121 (Male: 20,129 Female: 1,992) (including dispatches)

Consolidated: 48,849

Research and development sites:

Head Office, Mazda R&D Center (Yokohama), Mazda North American Operations (USA), Mazda Motor Europe (Germany), China Engineering Support Center (China)

Production sites:

Japan: Hiroshima Plant (Head Office, Ujina), Hofu Plant (Nishinoura, Nakanoseki), Miyoshi Plant

Overseas: China, Thailand, Mexico, Vietnam\*1, Malaysia\*2, Russia\*2

Sales companies:

Japan: 229, Overseas: 141

Principal products: Four-wheeled vehicles, gasoline reciprocating engines, diesel engines, automatic and manual transmissions for vehicles

\*1 Some models are assembled locally (Volume is not disclosed)

\*2 Assembly only (Volume is not disclosed)

## **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 | April 1 2017 | March 31 2018 | 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.**

China

Japan

Mexico

Thailand

Other, please specify (The rest of world)

## **C0.4**

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

JPY

## **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.**

Equity share

## **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** |
| Chief Executive Officer (CEO) | Mazda has the CSR Management Strategy Committee, which the president and CEO chairs, has the responsibility for climate change. The members of the committee are Managing Executive Officers and above. The committee discusses not only the climate change but also the whole of CSR initiatives which Mazda is required from a global environmental perspective. The committee discusses and establishes the policies and designates prioritized issues. Regarding the climate change issues, the improvement progress of fuel economy of product and CO2 emission reduction from manufacturing, logistics and office are reported. Specific targets and results are laid out in the Mazda Green Plan, the Company’s environmental mid-term plan. By using the PDCA (plan-do-check-act) cycle when executing activities and following up on their results, Mazda can effectively reduce impact on the environment. The members of this committee are constructed from the major board members. |

## **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 – some meetings | Reviewing and guiding strategy  Reviewing and guiding major plans of action | The CSR Management Strategy Committee is scheduled twice a year Regarding the climate change issues, the followings are discussed. (1) Evaluation of Mazda Green Plan 2020 Mid-Term Environmental Plan. It includes the climate change-related targets such as fuel economy of vehicles, GHG emission reduction of factories and offices and logistics. (2) Evaluate the climate change issues by graded scores and its mapping according to the following two axes. The climate change issues are recognized and approved as one of important issues. \*Horizontal axis: Significance of Mazda group impacts (graded by Mazda’s relevant divisions, from such viewpoints as the possibilities for existing risks and opportunities at Mazda, and the significance of their impact) \*Vertical axis: Influence on stakeholders (graded by external experts and institutional investors, from such viewpoints as the relationship with the business activities of the automotive industry and Mazda, and of the possibilities for having impact) |

## **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** |
| Chief Executive Officer (CEO) | Both assessing and managing climate-related risks and opportunities | Half-yearly |
| Safety, Health, Environment and Quality committee | 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.**

<Overviews>

Each department carries out its operations based on goals and plans formulated with an understanding of the policies and guidelines determined by the CSR Management Strategy Committee, which the president chairs, and in cooperation with other Group companies. The CSR Management Strategy Committee discusses the following issues.

\*Establishment of CSR targets and follow-up of the progress in CSR efforts

\*Performance evaluation of the mid-term environmental plan (Mazda Green Plan)

\*Reviewing and identifying key CSR issues (materiality)

\*The present status of social needs and trends regarding CSR and the results of external evaluations of CSR initiatives

Under this committee, each section makes the medium or long term target and plan, and implements each initiative.

Regarding the environmental issues, three committees under the CSR Management Strategy Committee, promote environmental management throughout the Group. These are the Product Environment Committee, the Business Site Environment Committee, and the Social Contribution Committee.

From FY 2016, the Board of Directors holds discussions on issues concerning sustainability.

1. CSR Management Strategy Committee

\*Chairperson: Representative Director and President

\*Scheduled twice a year

\* The committee discusses not only the climate change but also the whole of CSR initiatives which Mazda is required from a global environmental perspective. The committee discusses and establishes the policies and designates prioritized issues.

Regarding the climate change, the following issues are discussed.

(1) Evaluation of Mazda Green Plan 2020 Mid-Term Environmental Plan. It includes the climate change-related targets such as fuel economy of vehicles, GHG emission reduction of factories and offices and logistics.

(2) Evaluate the climate change issues by graded scores and its mapping according to the following two axes. The climate change issues are recognized and approved as one of important issue.

\*Horizontal axis: Significance of Mazda group impacts (graded by Mazda’s relevant divisions, from such viewpoints as the possibilities for existing risks and opportunities at Mazda, and the significance of their impact)

\*Vertical axis: Influence on stakeholders (graded by external experts and institutional investors, from such viewpoints as the relationship with the business activities of the automotive industry and Mazda, and of the possibilities for having impact)

2. Product Environment Committee

\*Chairperson: Executive Officer in Charge of R&D

\*Scheduled twice a year

\*This committee studies and promotes key items regarding environmental preservation in relation to development, including development of environmentally conscious products and technologies.

There are four key categories including the climate change, "1. Energy- and Global-Warming-Related Issues", "2. Promoting Resource Recycling", "3. Cleaner Emissions", "4. Environmental Management".

The specific targets related on climate change are "Respond to fuel economy standards in each country/region", "Improve fuel economy using SKYACTIV TECHNOLOGY", "Promote Development of next generation vehicles using biofuels, electrical power, hydrogen", " Promote an integrated approach to traffic systems".

3. Business Site Environment Committee

\*Chairperson: Executive Officer in Charge of Environment

\*Scheduled twice a year

\*This committee studies and promotes key items regarding environmental preservation in relation to manufacturing and logistics. Studies and promotes methods to reduce environmental impact throughout the entire supply chain, encompassing dealerships, suppliers, and others (including the extension of EMS to Group companies).

The four key categories are same as the Product Environment Committee.

The specific targets related on climate change are "Reduce CO2 emissions from factories and offices", " Reduce CO2 emissions from logistics".

4. Social Contribution Committee

\*Chairperson: Executive officer in charge of CSR, Environment and General Affairs

\*Scheduled twice a year

\*This committee studies and promotes key items regarding environmental protection in the area of social contributions for the Group as a whole.

## **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?**

All employees

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Environmental criteria included in purchases

### **Comment**

Every year, Mazda awards for employee's improvement suggestions including environmental related suggestions. Monetary pay of awards is different by each employee's progress, and maximum payment is 15,000 yen.

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

All employees

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Environmental criteria included in purchases

### **Comment**

Every year, Mazda's research and development divisions recognize all of their employees who achieved the outstanding results and activities. There are six areas such as environment, quality, technology, work innovation, and so on. In environment area, the outstanding products, technologies, activities are evaluated in terms of the contribution to environmental corporate image improvement. They are commended by three levels (Highest, Excellent, Encouraging), and monetary rewards are presented as the extra prize by levels.

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

All employees

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Energy reduction target

### **Comment**

Mazda pays 1,500 yen monthly as an allowance for walking commuters who walk over 2km section.

## **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 | 18 | 20 | It is same term of Mazda’s mid-term environmental plan “Mazda Green Plan 2020”. |
| Medium-term | 21 | 30 | It is same term of Japan’s INDC（Intended Nationally Determined Contributions), the target year of Commitment to a Low Carbon Society of the Japan Automobile Manufacturers Association, Inc. (JAMA) . |
| Long-term | 31 | 50 | It is same term as the target year of Paris Agreement. |

## **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 | \*Mazda has the department in charge of CSR and environmental issues. This department researches the risk and possibility to be underlying in the company, and forecasts the impact of influence wholly and generally. \*In addition, the CSR Management Strategy Committee discusses the whole of CSR initiatives which Mazda is required from a global environmental perspective. The climate change issues are also discussed in this committee. The above mentioned department in charge of CSR and environmental issues serves as the secretariat of CSR Management Strategy Committee. \* CSR Management Strategy Committee is scheduled twice a year. The view point of future risk includes more than six years perspective. \* From FY March 2016, the Board of Directors holds discussions on issues concerning sustainability. |

## **C2.2b**

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

As the assessment at company-wide level, the fuel economy of product (Category 11 of Scope 3) and the energy-saving (Scope 1 and 2) are handled by Product Environment Committee and Business Site Environment Committee for each as the climate change risks. The specific targets and initiatives of these areas are studied and implemented by each committee, and reported to CSR Management Strategy Committee twice a year.

As the assessment at asset level, Mazda and group manufacturing companies in Japan and overseas have ISO 14001 certification, and the all dealerships in Japan are getting EcoAction 21 (EA21)\*, Mazda group promotes to set the targets, and monitors the results and progress for Scope 1 and 2 emissions as the climate change issues through these environmental management systems. Furthermore, Business Site Environment Committee manages for Japanese group companies.

Regarding the influence, the fuel economy of product (Category 11 of Scope 3) affects the sale of product directly, the energy-saving (Scope 1 and 2) affects the operation cost as fuel and electricity consumptions.

\* EcoAction 21 (EA21): Simplified EMS established by the Ministry of the Environment, for application at companies of various scales, such as small-to medium sized companies.

## **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 | [ Product area ] The applications for fuel economy regulation and emission regulation for each country make the pressure for profit due to the cost increase. Product Environment Committee evaluates this issue through the trend research of this area. [ Business site area ] The global warming tax makes the pressure for profit due to the cost increase. Business sites (both domestic and overseas) evaluate this issue through the trend research of this area. |
| Emerging regulation | Relevant, always included | [ Product area ] The applications for future fuel economy regulation and emission regulation, such as zero emission vehicle regulation and so on for each country make the pressure for profit due to the cost increase. Product Environment Committee evaluates this issue through the trend research of this area. [ Business site area ] The future cap and trade and/or emission trading make the pressure for profit due to the cost increase. Business sites (both domestic and overseas) evaluate this issue through the trend research of this area. |
| Technology | Relevant, always included | [ Product area ] If the selectable low-carbon technologies are received limitation from market, and the selectable product offers are limited, the sales competitiveness may become weak. The exclusion of internal combustion engine is one of example in this case. Product Environment Committee evaluates this issue through the trend research and forecast of this area. |
| Legal | Relevant, always included | [ Product area ] If the application for regulations cannot be success, there is the risk to pay penalty. However, the company expends the capital expenditures and research and development for each, in order to avoid such case. Product Environment Committee evaluates this issue through the trend research and forecast of this area. |
| Market | Relevant, always included | [ Product area ] If the preference of consumer changes and demand concentrates in the choice of EV or FCV except the internal combustion vehicles, and car manufacture cannot offer appropriate technologies, such car manufacture lose the whole of market. In addition, such demand concentration leads to the cost increase of raw materials, and this brings the less profit for car manufacture. For example, the sudden EV shift may lead to the cost increase of electric devices such as the batteries, and the company may be hard to purchase them. Product Environment Committee evaluates this issue through the trend research of this area. [ Business site area ] If the energy price becomes expensive, the operation cost will increase. Business sites (both domestic and overseas) evaluate this issue through the trend research of this area. |
| Reputation | Relevant, always included | [ Product area ] The preference of consumer changes to automobile may lead to establish the criticism to automobile sector itself, and the busing to internal combustion engine vehicles. Product Environment Committee evaluates this issue through the trend research and forecast of this area. |
| Acute physical | Relevant, always included | [ Business site area ] The tough natural disasters such as typhoon, high waves and flood are possible to give a bad influence for operation like the temporary cutoff of production. In the case of Mazda, as Mazda’s major plants in Japan, which produce the half volume of vehicles, locate around sea, Mazda provides the emergency protection against the tough typhoon, high waves and flood as a part of BCP (Business Continuity Plan). |
| Chronic physical | Relevant, always included | [ Business site area ] The chronic high waves and the rise of sea level are possible to give a bad influence for operation like the cutoff of production. In the case of Mazda, as Mazda’s major plants in Japan, which produce the half volume of vehicles, locate around sea, Mazda regularly maintains for the shore protection and expends the several million yen. Furthermore, there is a bad influence by the epidemic of a foreign disease or new type influenza based on the abnormal weather. For the risk of epidemic of a disease on the all employees of both direct and indirect employees and desk workers, Mazda has formed a framework for liaison and information-sharing among group companies throughout Japan and around the world, and Mazda has provided its supply of masks and disinfectant to Group locations. |
| Upstream | Relevant, sometimes included | [ Product area ] As the sudden EV shift may lead to the cost increase and/or the difficulty of electric devices. It will be important to prepare strong procurement system. Product Environment Committee evaluates this issue through the trend research of this area. [ Business site area ] The preparation for BCP of suppliers against the abnormal weather and natural disaster is also important. Assuming a large-scale disaster, the risks for each supplier were identified in terms of substitutability, location, and business continuity. By sharing the identified risks, measures against them will be developed. For procedures when suppliers are affected by disasters, the Company has compiled the Risk Management Procedures for Affected Suppliers. |
| Downstream | Relevant, sometimes included | [ Product area ] There is a theme of recycling of used battery. It will be necessary to study the fundamental structure enabling sustainable resources circulation. |

## **C2.2d**

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

The followings are the major "Transition risk and opportunity" and "Physical risk and opportunity" as Mazda.

If Mazda can apply against "Risk" properly, then the opportunity appears.

[Transition risk and opportunity ]

In particular with product line-up, there are several risks relating to "Current regulation", "Emerging regulation", "Market" and "Reputation". Specifically, the applications for fuel economy regulation and emission regulation for each country make the pressure for profit due to the cost increase. Mazda recognizes that the difficulty of application for coming regulation will be hard more and more gradually in the period of Mazda's medium-and-long term plan. Therefore Mazda is trying to minimize and avoid by not only through the activities of each environmental committee, but also by Mazda's business plan itself.

As the specific approach, Mazda evolves "SKYACTIV TECHNOLOGY" from the first generation to the second one. And Mazda optimizes the product strategies in terms of customer needs, segment characteristics, profit, costs, etc., by dividing next-generation products into small and large architectures. For this direction, Mazda promotes the following various initiatives which relate on the environmental technologies, also the innovative technologies required for future car.

[ Physical risk and opportunity ]

"Acute physical" and "Chronic physical" are the major areas in the case of Mazda.

As acute physical risk, the tough natural disasters such as typhoon, high waves and flood are possible to give a bad influence for operation like the temporary cutoff of production.

As chronic physical risk, the chronic high waves and the rise of sea level are possible to give a bad influence for operation like the cutoff of production also.

In the case of Mazda, as Mazda’s major plants in Japan, which produce the half volume of vehicles, locate around sea, the high waves and the rise of sea level are possible risks.

On the other side, as Mazda’s supplier also similar risks, Mazda is sharing the identified risks and developing the measures, assuming a large-scale disaster, risks for each supplier were identified in terms of substitutability, location, and business continuity. For procedures when suppliers are affected by disasters, Mazda has compiled the Risk Management Procedures for Affected Suppliers.

Mazda tries to obtain an opportunity without any loss chance through the activities reducing and controlling identified risks, and realize BCP.

The followings are the way to prioritize the identified risks and opportunities as Mazda.

1) Criteria for determining materiality and priorities:

(1)Direct financial impact on our business

(2)Expected timing when the influence clearly appears, and the analysis result regarding current status about lead time to start the necessary measure

(3)Reason why the issue can become an opportunity or risk for Mazda

(4)Magnitude of influence when the issue becomes an opportunity or risk

2) Reporting process:

The information regarding risk and opportunity related on products, productions, sales and so on is reported to CSR Management Strategy Committee. The members of this conference are organized by Managing Executive Officers and above. This conference is held twice a year. The contents reported to CSR Management Strategy Committee are the outputs which are analyzed, studied, collected by Product Environmental Committee, Business Site Environmental Committee and Social Contribution Committee (these are the substructure of CSR Management Strategy Committee).

## **C2.3**

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

Yes

## **C2.3a**

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

### **Identifier**

Risk 1

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

Direct operations

### **Risk type**

Transition risk

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

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

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

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

### **Company- specific description**

The internal combustion engine such as GE and DE were common power sources for vehicles until several years ago. Each car manufacture was promoting not only to meet the regulations, but also to improve fuel economy (= low-carbon) for their products competitiveness. However the new-generation power sources such as HEV, PHEV, EV and FCV are spreading now. If the selectable low-carbon technologies are received limitation from market, and the selectable product offers are limited, car manufacture faces to the risk of product and service decrease. For example, France and U.K. stated to prohibit the sale of internal combustion engine vehicles in 2040. If the consumers of market accept such policy or regulation regardless of preference and the demand concentrates in the choice of EV or FCV except the internal combustion vehicles, and car manufacture cannot offer appropriate technologies, such car manufacture lose the whole of market. In addition, such demand concentration leads to the cost increase of raw materials, and this brings the less profit for car manufacture. For example, the sudden EV shift may lead to the cost increase of electric devices such as the batteries, and the company may be hard to purchase them. Even the company can offer the product through such procurement difficulty the cost increase brings the less profit.

### **Time horizon**

Long-term

### **Likelihood**

Likely

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

695200000000

### **Explanation of financial impact**

For example, France and U.K. stated to prohibit the sale of internal combustion engine vehicles in 2040. If such condition spreads to the whole of Europe and if Mazda loses European market and its impact is same level as FY March 2018 in the future, the lost impact will become 269,000 units of vehicles and 695,200 million yen.

### **Management method**

Mazda is making comprehensive improvements of base technologies "SKYACTIV TECHNOLOGY", with gradual introduction of electric devices, Mazda calls this development approach "Building-Block Strategy". Based on these initiatives, Mazda continuously makes effort to perfect the internal combustion engine technology, also implements the commercial introduction of electric, plug-in and other electrified vehicles in consideration of each country or region’s energy resources, regulations, power generation methods, infrastructure and so on. Such kind of offering a number of powertrain options, Mazda calls “Multi-Solutions”, are the countermeasure for the future as Mazda. Mazda will offer EV to the market, where cannot be offered the internal combustion engine, by “Multi-Solutions” initiatives. Regarding EV, Mazda took the following initiatives in FY March 2018. (1) Mazda, Denso, and Toyota signed a joint technology development contract for electric vehicles, and agreed to establish a new company as a joint development center and began specific cooperative projects. (in September 2017) (2) Mazda, ELIIY Power and Ube Industries agreed to jointly develop 12-volt lithium-ion starter batteries for vehicles. (in March 2018) Mazda promotes not only the development of next-generation technologies, but also makes effort to minimize the risk of raw materials cost increase and procurement difficulty by such alliance and collaboration with the material supplier.

### **Cost of management**

288000000000

### **Comment**

The investment for the future including the above mentioned initiatives, Mazda expends approximately 100,000 million yen level every year for capital expenditures and research and development for each. The figure of next column shows the total amount of 145,000 million yen capital expenditures and 143,000 million yen research and development in FY March 2019.

### **Identifier**

Risk 2

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

Direct operations

### **Risk type**

Transition risk

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

Policy and legal: Increased pricing of GHG emissions

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

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

### **Company- specific description**

New system such as environmental tax on fossil fuel or Feed-in Tariff and so on, will make the increase of energy purchase cost both directly and indirectly (means the purchase of parts and materials). Mazda spends approximately 14,000 million yen for the purchase of energy regularly for the operation of boiler (heavy oil, natural gas and so on) and various power equipment (electricity). New regulation on energy price will make an influence even the percentage of increase ratio is small, Mazda assumes that the amount will become several hundreds of millions of yen and this impact is not so small.

### **Time horizon**

Current

### **Likelihood**

Virtually certain

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

1400000000

### **Explanation of financial impact**

As Mazda spends approximately 14,000 million yen for the purchase of energy a year regularly, if the energy cost increases 10%, it makes a pressure on Mazda’s profit.

### **Management method**

Mazda is introducing low-CO2-emission production technologies and unwavering actions for constant improvement. Mazda expended approximately 300 million yen for the contribution of energy cost reduction in FY March 2018.

### **Cost of management**

300000000

### **Comment**

### **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**

In the case of Mazda, the major plants in Japan locate around sea (3 plants in Hiroshima and Yamaguchi among 4 plants). Although such location enable the large scale of distribution, it is easy to be affected by the typhoon. If typhoon becomes more powerful, and attacks more frequently, Mazda's manufacturing facilities can be damaged. And Mazda's production line may stop due to the breakage of parts and materials supply network. Therefore, Mazda recognizes that the CO2 emissions reduction measures are the most effective way to minimize the abnormal weather resulting from climate change, and its effects to Mazda.

### **Time horizon**

Current

### **Likelihood**

About as likely as not

### **Magnitude of impact**

High

### **Potential financial impact**

7100000000

### **Explanation of financial impact**

If such natural disaster makes the damage and influences on the production, it will influence on the sales. If Mazda forecasts the impact of 10% of production line shut-down for one week due to the natural disaster by climate change, though it depends on the level of damage and period of time, the net sales could decrease by around 7,100 million yen, based on Mazda's revenue for the FY March 2018, around 3.5 trillion yen.

### **Management method**

When Mazda decides plant locations, Mazda leads strict inspections from the viewpoint of flood risk every time. In particular, as Mazda’s principal domestic sites locate in seacoast, the shore protection had been constructed since the plant establishment already, and Mazda is regularly reinforce and maintain the shore protection against flood risks. Therefore Mazda’s major domestic and foreign sites did not receive the serious damage from natural disaster due to a climate change so far. Even in such a situation, Mazda regularly maintains for the emergency protection against the tough typhoon, high waves and flood as a part of BCP (Business Continuity Plan). Mazda expends approximately 4 million yen every year for the maintenance of shore protection in Japan. On the other side, as Mazda’s supplier also similar risks, Mazda is sharing the identified risks and developing the measures, assuming a large-scale disaster, risks for each supplier were identified in terms of substitutability, location, and business continuity. For procedures when suppliers are affected by disasters, Mazda has compiled the Risk Management Procedures for Affected Suppliers.

### **Cost of management**

4000000

### **Comment**

## **C2.4**

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

Yes

## **C2.4a**

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

### **Identifier**

Opp1

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

Direct operations

### **Opportunity type**

Products and services

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

Development and/or expansion of low emission goods and services

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

Increased revenue through demand for lower emissions products and services

### **Company- specific description**

The internal combustion engine such as GE and DE were common power sources for vehicles until several years ago. Each car manufacture was promoting not only to meet the regulations, but also to improve fuel economy (= low-carbon) for their products competitiveness. However the new-generation power sources such as HEV, PHEV, EV and FCV are spreading now. In the case of internal combustion engine, approximately 80% CO2 emissions are discharged from "Use of sold products (category 11 of Scope 3)" process according to LCA, a method for calculating and evaluating the environmental influence of products across its entire life cycle of vehicle. It is very important to reduce this category car manufactures. Mazda believes that "Well to Wheel" viewpoint is correct way to reduce CO2 emissions of "Use of sold products” not only while driving “tank-to-wheel”, but also in the “well-to-tank” stage, which includes fuel extraction, refining and power generation. Mazda offers the appropriate commercial introduction of electric, plug-in and other electrified vehicles in consideration of each country or region’s energy resources, regulations, power generation methods, infrastructure and so on, which Mazda calls “Multi-Solutions”, according to the view point of “well-to-wheel”. When such kind of approach is accepted and recognized as superior environment conscious products with high added value from the market, there is an opportunity for Mazda to enjoy both sales and profit increase.

### **Time horizon**

Medium-term

### **Likelihood**

Likely

### **Magnitude of impact**

High

### **Potential financial impact**

16300000000

### **Explanation of financial impact**

If 163,000 unit of vehicles, which are 10% of 1,631,000 unit (= Mazda’s sales result of FY March 2018), can have the premium price at 100,000 yen as the high added value, the incremental sales become 16,300 million yen (100,000 yen x 163,000 unit).

### **Strategy to realize opportunity**

Mazda is making comprehensive improvements of base technologies "SKYACTIV TECHNOLOGY", with gradual introduction of electric devices, Mazda calls this development approach "Building-Block Strategy". Based on these initiatives, Mazda continuously makes effort to perfect the internal combustion engine technology, also implements the commercial introduction of electric, plug-in and other electrified vehicles in consideration of each country or region’s energy resources, regulations, power generation methods, infrastructure and so on. Such kind of offering a number of powertrain options, Mazda calls “Multi-Solutions”, are the countermeasure for the future as Mazda. Mazda offers the appropriate commercial introduction to meet the customer needs of each market by such “Multi-Solutions”. Furthermore, Mazda evolves "SKYACTIV TECHNOLOGY" from the first generation to the second one. Mazda optimizes the product strategies in terms of customer needs, segment characteristics, profit, costs, etc., by dividing next-generation products into small and large architectures. For this direction, Mazda promotes the various initiatives which relate on the environmental technologies, also the innovative technologies required for future car. Mazda also promote the business and capital alliance with Toyota (Joint manufacturing in the U.S., joint development of EV technologies, connectivity, complementary products, etc.) and the strategic collaboration with suppliers .

### **Cost to realize opportunity**

288000

### **Comment**

The investment for the future including the above mentioned initiatives, Mazda expends approximately 100,000 million yen level every year for capital expenditures and research and development for each. The figure of above column shows the total amount of 145,000 million yen capital expenditures and 143,000 million yen research and development in FY March 2019. [Note] As the range of "Cost to realize opportunity" is restricted (0 - 99,999,999,999), the correct figure could not be inputted. The above mentioned figure is 288,000 million yen. So the correct figure is 288,000,000,000 yen which we intended to input.

### **Identifier**

Opp2

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

Direct operations

### **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**

Increased revenue through demand for lower emissions products and services

### **Company- specific description**

Mazda is making comprehensive improvements of base technologies "SKYACTIV TECHNOLOGY", with gradual introduction of electric devices, Mazda calls this development approach "Building-Block Strategy". Mazda has been perfecting the internal combustion engine, it is “SKYACTIV-X engine” which sets to become the world’s first commercial gasoline engine to use compression ignition, announced in August 2017. This unique new engine combines the advantages of gasoline and diesel engines to achieve outstanding environmental performance and uncompromised power and acceleration performance. It improves fuel efficiency up to 20-30 percent over Mazda’s current gasoline engine and also increases torque 10 - 30 percent. Basically, it offers the driving performance of a 2-liter gasoline engine sports car with CO2 emissions of a 1.5-liter diesel compact car. When the models equipped this new engine are accepted and recognized as superior environment conscious products with high added value from the market, there is an opportunity for Mazda to enjoy both sales and profit increase.

### **Time horizon**

Short-term

### **Likelihood**

Likely

### **Magnitude of impact**

High

### **Potential financial impact**

16300000000

### **Explanation of financial impact**

If 163,000 unit of vehicles, which are 10% of 1,631,000 unit (= Mazda’s sales result of FY March 2018), can have the premium price at 100,000 yen as the high added value, the incremental sales become 16,300 million yen (100,000 yen x 163,000 unit).

### **Strategy to realize opportunity**

IEA/ETP Energy Technology Perspective 2015 expects that the majority of vehicles in the global market will continue to be powered by internal combustion engines (about 84% of the vehicles are powered by internal combustion engines in 2035). In such expectation, Mazda's own unique technology SKYACTIV-G/D and SKYACTIV-X (the world’s first commercial gasoline engine to use compression ignition) have superiority to surpass other companies in both environmental performance and power/acceleration performance. Based on these technologies, Mazda promotes "Building-Block Strategy" with gradual introduction of electric devices. Based on these initiatives, Mazda continuously makes effort to perfect the internal combustion engine technology, also implements the commercial introduction of electric, plug-in and other electrified vehicles in consideration of each country or region’s energy resources, regulations, power generation methods, infrastructure and so on. Such kind of offering a number of powertrain options, Mazda calls “Multi-Solutions”, are the countermeasure for the future as Mazda. Mazda offers the appropriate commercial introduction to meet the customer needs of each market by such “Multi-Solutions”.

### **Cost to realize opportunity**

288000

### **Comment**

The investment for the future including the above mentioned initiatives, Mazda expends approximately 100,000 million yen level every year for capital expenditures and research and development for each. The figure of next column shows the total amount of 145,000 million yen capital expenditures and 143,000 million yen research and development in FY March 2019. [Note] As the range of "Cost to realize opportunity" is restricted (0 - 99,999,999,999), the correct figure could not be inputted. The above mentioned figure is 288,000 million yen. So the correct figure is 288,000,000,000 yen which we intended to input.

### **Identifier**

Opp3

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

Direct operations

### **Opportunity type**

Resilience

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

Other

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

Other, please specify (Offer of anti-disaster measures tech)

### **Company- specific description**

When electric infrastructure suffered a damage by natural disaster caused by abnormal weather possibly-derived from climate change, it is thought that the storage battery of electric vehicle (EV and PHEV) is useful as emergency power supply as one of countermeasures. On the other hand, it is a big issue to extend driving range to make EV widely available. There are several solutions; the establishment of battery charge infrastructure, the technological innovation of battery and the battery capacity increase. Another useful technical approach is to install a generator on EV. Though a fuel-cell eclectic vehicle (FCEV) has drawn attention in this field generally, Mazda thinks that a conventional engine unit is also applicable as a generator. Mazda applied the idea which uses small-size rotary engine as a generator for Demio (Mazda2) EV and developed the prototype vehicle with range-extender, which makes possible for longer driving range. Mazda introduced it to media/journalists in December 2013. Mazda continues to develop this technology. Although this system is developed as the range-extender for EV, there are other possibilities like a portable generator at the time of disaster. The characteristic of this system is multiple fuel acceptance allowing propane-gas, gasoline, portable gas bombe (=can), and so on.

### **Time horizon**

Medium-term

### **Likelihood**

Likely

### **Magnitude of impact**

High

### **Potential financial impact**

35000000000

### **Explanation of financial impact**

It is difficult to assume the business size of portable generator at the time of disaster caused by the climate change. However, if Mazda has such business chance and successes at 1 % share in revenue, it could be about 35,000 million yen (Mazda's revenue of FY March 2018 was about 3.5 trillion yen). (This calculation shows the only one aspect. The real opportunity for Mazda is the business using for EV. If it successes, the size of contribution becomes much more than the former.).

### **Strategy to realize opportunity**

Mazda is the first and only manufacturer to produce the mass production rotary engine in the world. The rotary engine is Mazda's brand assets Mazda is continuously researching and developing future potential and possibility of rotary engine. The prototype engine is very compact and mounted horizontally, then such thin engine layout keeps enough luggage space. Generator power output by this range-extender can be used for emergency area or home electricity at disaster. The advantages, being thin, compact and silent as mentioned above, allow it to use as the independent unit specified as generator. From energy security point of view, Mazda assumes that the specific fuel condition of each country and region will come to a head locally (e.g. bio-ethanol in Brazil) and the further study of "multiple fuel solution" for the fuel diversification will become more important. Mazda recognizes that it will be necessary to develop the proper combustion technologies to meet fuel diversification and the innovation of technologies to use the low CO2 emissions fuel such as natural gas and bio-fuel, and proceed to research and develop. These research and development initiatives will make a possibility to realize the multiple fuel solution applying to propane-gas, gasoline, portable bombe (=can), and so on, for range-extender also.

### **Cost to realize opportunity**

288000

### **Comment**

The investment for the future including the above mentioned initiatives, Mazda expends approximately 100,000 million yen level every year for capital expenditures and research and development for each. The figure of next column shows the total amount of 145,000 million yen capital expenditures and 143,000 million yen research and development in FY March 2019. [Note] As the range of "Cost to realize opportunity" is restricted (0 - 99,999,999,999), the correct figure could not be inputted. The above mentioned figure is 288,000 million yen. So the correct figure is 288,000,000,000 yen which we intended to input.

## **C2.5**

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

|  |  |  |
| --- | --- | --- |
|  | **Impact** | **Description** |
| Products and services | Impacted | Since 2013, Mazda has been leveraging "SKYACTIV TECHNOLOGY" to move forward with further restructuring. Mazda follow this strategy and promotes the continuous evolution of new generation products line, and develops the next-generation technologies, and introduces them. Based on the above mentioned strategy, Mazda's global sales volume successfully increased from 1,250,000 unit (in FY March 2012) to 1,630,000 unit (in FY March 2018) with a stable growth 50,000 unit per year. |
| Supply chain and/or value chain | Impacted | Mazda's success affects the influence to the suppliers(having high business ratio with Mazda in particular) producing the parts which are indispensable for the production of SKYACTIV technology, and affects the influence of their business sustainability. Based on the promotion of SKYACTIV technology, Mazda's global sales volume successfully increased from 1,250,000 unit (in FY March 2012) to 1,630,000 unit (in FY March 2018) with a stable growth 50,000 unit per year. This result affects a good influence not only for Mazda's suppliers but also for Mazda's dealers and distributors of both domestic and overseas. |
| Adaptation and mitigation activities | Impacted | Based on the promotion of SKYACTIV technology, Mazda's global sales volume successfully increased from 1,250,000 unit (in FY March 2012) to 1,630,000 unit (in FY March 2018) with a stable growth 50,000 unit per year. Mazda could contribute the reduction of CO2 emissions and its amount is not so small, because the most of vehicle sold by Mazda are equipped SKYACTIV technology. In the case of internal combustion engine, approximately 80% CO2 emissions are discharged from "Use of sold products (category 11 of Scope 3)" process according to LCA, a method for calculating and evaluating the environmental influence of products across its entire life cycle of vehicle. It is very important to reduce this category car manufactures. As of the end of FY March 2016, Mazda has raised the average fuel economy of Mazda vehicles sold worldwide by 26% compared with 2008 levels. |
| Investment in R&D | Impacted | The investment for the future including the measure for climate change, Mazda is expending approximately 100,000 million yen level every year for capital expenditures and research and development for each. These investments are necessary not only to avoid a risk but also to obtain an opportunity, especially for the research and development. As the current status, Mazda expended 136,000 million yen in FY March 2018, and will expend143,000 million yen in FY March 2019, for the research and development. |
| Operations | Impacted | The production and sales of vehicles influence all of Mazda's operation, because it is Mazda's business itself. In order to reinforce the production volume capacity of SKYACTIV Technology, Mazda started the production of engine at the new powertrain plant in Thailand from October 2015. Furthermore, Mazda reinforced the production capacity from 30,000 units to 100, 000 units in August 2016. |
| 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 | Since 2013, Mazda has been leveraging "SKYACTIV TECHNOLOGY" to move forward with further restructuring. Mazda follows this strategy and promotes the continuous evolution of new generation products line, and develops the next-generation technologies, and introduces them. Based on the above mentioned strategy, Mazda's revenues successfully increased from 2,205,270 million yen (in FY March 2012) to 3,474,000 million yen (in FY March 2018). The impact on revenue is extremely high, because the production and sales of vehicles are Mazda's business itself. |
| Operating costs | Impacted | When Mazda decides plant locations, Mazda leads strict inspections from the viewpoint of flood risk every time. In particular, as Mazda’s principal domestic sites locate in seacoast, the shore protection had been constructed since the plant establishment already, and Mazda is regularly reinforce and maintain the shore protection against flood risks. As the above mentioned measurements had been constructed since the plant establishment already, the impact on finance is not so high, except for the regularly spending for maintenance around 4 million yen per year. |
| Capital expenditures / capital allocation | Impacted | The investment for the future including the measure for climate change, Mazda is expending approximately 100,000 million yen level every year for capital expenditures and research and development for each. These investments are necessary not only to avoid a risk but also to obtain an opportunity, especially for the research and development. The size of total amount of capital expenditures and research and development in FY March 2018 is approximately 7% compering to Mazda's annual revenue, it is not so small impact for Mazda. |
| Acquisitions and divestments | Not yet impacted | Mazda does not have any fact of acquisitions and divestments, it is not applicable. |
| Access to capital | Impacted | There is a financing structure with low interest according to the environmental ranking in Japan. If the company has a superior environmental initiative, the company can receive such financing according to this environmental ranking. Mazda showed a plan to enforce the superior environmental measure including GHG reduction to the investor, and has been getting the financing from the past. |
| Assets | Impacted | In order to reinforce the production volume capacity of SKYACTIV Technology, Mazda started the production of engine at the new powertrain plant in Thailand from October 2015. Furthermore, Mazda expended an additional 22,100 million yen, and reinforced the production capacity from 30,000 units to 100, 000 units in August 2016. |
| Liabilities | Not impacted | Mazda does not have any liabilities relating to climate change directly. |
| 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.**

i) How business objectives and strategy have been influenced by climate-related issues;

According to "2℃ scenario" provided in the fifth evaluation report of Intergovernmental Panel on Climate Change (IPCC), the various industries including car sector are implementing the initiatives of CO2 reduction for this scenario realization, and positively disclose its strategy.

In order to realize "2℃ scenario" as the mission of car sector, Mazda believes that "Well to Wheel" viewpoint is correct way to reduce CO2 emissions not only while driving “tank-to-wheel”, but also in the “well-to-tank” stage, which includes fuel extraction, refining and power generation..

ii) Business strategy is linked to an emissions reductions target or energy reduction target;

SKYACTIV TECHNOLOGY is the comprehensive improvements of base technologies. Mazda is implementing this technology, and proceeding Building-Block Strategy which gradually introduces electric devices. In addition, Mazda will introduce next-generation technology "SKYACTIV-X" engine, set to become the world’s first commercial gasoline engine to use compression ignition.

Based on the SKYACTIV TECHNOLOGY and Building Block Strategy, Mazda continuously makes effort to perfect the internal combustion engine technology, also implements the commercial introduction of electric, plug-in and other electrified vehicles in consideration of each country or region’s energy resources, regulations, power generation methods, infrastructure and so on. Such kind of developing and offering a number of powertrain options, Mazda calls “Multi-Solutions”, are the countermeasure for the future as Mazda.

Based on the above mentioned strategy, Mazda set a goal of reducing corporate average “well-to-wheel” CO2 emissions to 50% of 2010 levels by 2030, with a view to achieving a 90% cut by 2050.

iii) What have been the most substantial business decisions made;

In order to realize, implement and reinforce, the above mentioned strategy, Mazda announced the following various initiatives in FY March 2018. The major examples as follows;

(1) Mazda, Denso, and Toyota signed a joint technology development contract for electric vehicles, and agreed to establish a new company as a joint development center and begin specific cooperative projects. (in September 2017)

This new company will engage in the following:

a) Research into the characteristics that define optimum performance and functions of EVs from the standpoint of both individual components and whole vehicle.

b) Verification of component installation and vehicle performance realized by the characteristics achieved in item a).

c) Examination of the optimum concept for each car classification with regard to each component and each type of vehicle realized by achieving item a) and b).

(2) Mazda, ELIIY Power and Ube Industries agreed to jointly develop 12-volt lithium-ion starter batteries for vehicles.(in March 2018)

In light of global trends in environmental regulations, the joint development project aims to make a next-generation battery for widespread use in place of conventional lead-acid starter batteries and contribute to the realization of a safe and stress-free motorized society.

iv) What aspects of climate change have influenced the strategy;

Approximately 80% CO2 emissions are discharged from "Use of sold products (category 11 of Scope 3)" process according to LCA, a method for calculating and evaluating the environmental influence of products across its entire life cycle of vehicle. It is very important to reduce this category car manufactures.

The above mentioned Mazda's “Multi-Solutions”, which implements the commercial introduction of electric, plug-in and other electrified vehicles as the next-generation products in consideration of each country or region’s energy resources, regulations, power generation methods, infrastructure and so on, is the best mitigation and adaptation solutions for "2℃ scenario" on climate change as Mazda.

v) How the short-term strategy has been influenced by climate change;

The short-term strategy is to raise the average fuel economy of all Mazda vehicles sold worldwide by 2020 by 50% compared with 2008 levels by the SKYACTIV first generation technologies (SKYACTIV-G/D, HEV). As the mid-term strategy, Mazda aims to reduce corporate average “well-to-wheel” CO2 emissions to 50% of 2010 levels by 2030 by the SKYACTIV second generation technologies (SKYACTIV-X、SKYACTIV-D GEN2、SKYACTIV-G/D Upgrade、EV、Plug-in HEV、Mild HEV、Range Extender, and so on）.

vi) How the long-term strategy has been influenced by climate change;

For the long-term, Mazda set a goal of reducing corporate average “well-to-wheel” CO2 emissions with a view to achieving a 90% cut compared with 2010 levels by 2050 in the target year of the Paris agreement.

vii) How this is gaining a strategic advantage over your competitors;

IEA/ETP Energy Technology Perspective 2015 expects that the majority of vehicles in the global market will continue to be powered by internal combustion engines (about 84% of the vehicles are powered by internal combustion engines in 2035).

In such expectation, Mazda's own unique technology SKYACTIV-G/D and SKYACTIV-X (the world’s first commercial gasoline engine to use compression ignition) have superiority to surpass other companies in both environmental performance and power/acceleration performance. Furthermore, the utilization of Mazda's own unique rotary engine as the range extender for EV has also superiority in the performances of light weight, compact and silent. Other companies do not have such superiority.

viii) How the Paris Agreement has influenced the business strategy;

Mazda set a goal of reducing corporate average “well-to-wheel” CO2 emissions to 50% of 2010 levels by 2030, with a view to achieving a 90% cut by 2050. As the reference, the targets of Japanese government are to reduce 26% by 2030 and 80% by 2050 compared with 2013 levels.

## **C3.1d**

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

|  |  |
| --- | --- |
| **Climate-related scenarios** | **Details** |
| 2DS | The Automotive sector is exposed to the several risks such as the political policy and regulations for the measurement of global warming, and the trend change of consumers’ choice for the low-carbon technologies. Therefore Mazda set the several scenarios in order to analyze what kind of influence on Mazda’s business by the movement of each country or region’s energy political policy and regulations in the view of 2030 also 2050, while Mazda continuously makes effort to perfect the internal combustion engine technology. In the case of internal combustion engine, approximately 80% CO2 emissions are discharged from "Use of sold products (category 11 of Scope 3)" process according to LCA, a method for calculating and evaluating the environmental influence of products across its entire life cycle of vehicle. It is very important to reduce this category car manufactures. IEA/ETP Energy Technology Perspective 2015 shows the scenario relating to automotive sector, and expects that the majority of vehicles in the global market will continue to be powered by internal combustion engines (about 84% of the vehicles are powered by internal combustion engines in 2035). Mazda analyzed the influence on Mazda’s business based on this scenario, and studied the future strategy. As the result of this analysis, Mazda currently prospects that Mazda’s “Multi-Solution(offering a number of powertrain options properly)” can be applied for Mazda’s future business, even if the future situation changes. In addition, as the result of several analyses, Mazda set a new goal in August 2017, which reduces the corporate average “well-to-wheel” CO2 emissions to 50% of 2010 levels by 2030, with a view to achieving a 90% cut by 2050. Mazda continues to develop and implement the commercial introduction of electric, plug-in and other electrified vehicles as the next generation models in consideration of each country or region’s energy resources, regulations, power generation methods, infrastructure and so on, by “Multi-Solutions” as the countermeasure for the future. |

## **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.**

IEA/ETP Energy Technology Perspective 2015 expects that the majority of vehicles in the global market will continue to be powered by internal combustion engines (about 84% of the vehicles are powered by internal combustion engines in 2035).

Mazda refers to the above mentioned expectation, Mazda promotes "Building-Block Strategy" with gradual introduction of electric devices.

Mazda has own unique technology SKYACTIV-G/D and SKYACTIV-X (the world’s first commercial gasoline engine to use compression ignition) have superiority to surpass other companies in both environmental performance and power/acceleration performance.

Based on these basic technologies, Mazda continuously makes effort to perfect the internal combustion engine technology, also implements the commercial introduction of electric, plug-in and other electrified vehicles in consideration of each country or region’s energy resources, regulations, power generation methods, infrastructure and so on. Such kind of offering a number of powertrain options, Mazda calls “Multi-Solutions”, are the countermeasure for the future as Mazda. Mazda offers the appropriate commercial introduction to meet the customer needs of each market by such “Multi-Solutions”.

Based on the above mentioned strategy, Mazda set a goal of reducing corporate average “well-to-wheel” CO2 emissions to 50% of 2010 levels by 2030, with a view to achieving a 90% cut by 2050.

## **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 (location-based)

### **% emissions in Scope**

100

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

28

### **Base year**

1990

### **Start year**

2010

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

1099300

### **Target year**

2020

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

No, but we anticipate setting one in the next 2 years

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

100

### **Target status**

Underway

### **Please explain**

This target is only for Mazda Motor Corporation and domestic group companies. It does not include overseas group companies.

### **Target reference number**

Abs 2

### **Scope**

Scope 3 (upstream & downstream)

### **% emissions in Scope**

100

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

50

### **Base year**

1990

### **Start year**

2010

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

181100

### **Target year**

2020

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

No, and we do not anticipate setting one in the next 2 years

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

100

### **Target status**

Underway

### **Please explain**

(1) This target is only for Mazda Motor Corporation and domestic group companies. It does not include overseas group companies. (2) Exactly speaking, the boundary of this target covers both "Transportation and distribution" and "Transportation and distribution of sold products".

## **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**

50

### **Metric**

Other, please specify (Fuel economy of "Well to Wheel")

### **Base year**

2010

### **Start year**

2017

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

### **Target year**

2030

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

No, but we anticipate setting one in the next 2 years

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

1

### **Target status**

Underway

### **Please explain**

In August 2017, Mazda announced “Sustainable Zoom-Zoom 2030” amid radical transformations taking place in our industry worldwide. This is Mazda’s new initiative to use driving pleasure \_ the fundamental appeal of the automobile \_ to help solve issues facing the earth, society, and people for the long run. Specifically, Mazda set the goal to reduce Mzada’s corporate average “well-to-wheel” CO2 emissions to 50 percent of 2010 levels by 2030, with a view to achieving a 90% cut by 2050.

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

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

50

## **C4.2**

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

## **C4.3**

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

Yes

## **C4.3a**

### **(C4.3a) Identify the total number of 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 | 0 | 0 |
| To be implemented\* | 0 | 0 |
| Implementation commenced\* | 0 | 0 |
| Implemented\* | 12 | 4747 |
| Not to be implemented | 0 | 0 |

## **C4.3b**

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

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Other, please specify (Measure for steam supply loss)

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

2316

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

43000000

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

6000000

### **Payback period**

<1 year

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

3-5 years

### **Comment**

[ Implemented 1 ] Countermeasure for steam supply loss; Mazda uses steam energy for various production processes. In order to use this energy more efficiently without loss, Mazda has taken the following improvement initiatives. (1) Mazda has changed and optimized the supply pressure of steam according to the purpose, period and area of steam use, in order to reduce the radiation of heat from the steam supply lines (=pipes). (2) Mazda has taken the careful management to stop unnecessary steam supply according to the condition and period of steam use, in order to reduce the radiation of heat from the steam supply lines (=pipes). (3) Mazda has strengthened lagging materials for the portions of larger radiation of heat, specifying by thermography probe, in order to reduce the loss of radiation of heat from the steam supply lines (=pipes). Mazda was able to find the undiscoverable difficult leaking through this initiative, and it contributed the reduction of steam consumptions. (4) Mazda changed the heating system from steam to electric for some production lines. Through the discontinuation of steam supply, Mazda decreased the heat radiation amount from the steam supply plumbing and also improved the energy loss.

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Other, please specify (Measure for electricity supply lo)

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

230

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

7000000

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

57000000

### **Payback period**

4 - 10 years

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

3-5 years

### **Comment**

[ Implemented 2 ] Countermeasure for electricity supply loss; Mazda has conducted electric-load leveling to optimize its power demand, reducing the fixed loss by electric transformers; Mazda has conducted electric-load leveling to optimize its power demand, reducing the fixed loss by electric transformers.

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Process optimization

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

589

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

35000000

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

18000000

### **Payback period**

<1 year

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

3-5 years

### **Comment**

[ Implemented 3 ] Reduction of electricity consumptions by the size down-sizing of pumps and the change of heating system of injection machines; Mazda changed the size of cooling pump more smaller, and the heating system of injection machines to the ceramic heater (insulation effect increases), in order to reduce the electricity consumptions.

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Other, please specify (Adoption of LED lighting systems)

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

1146

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

32000000

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

229000000

### **Payback period**

4 - 10 years

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

3-5 years

### **Comment**

[ Implemented 4 ] Adoption of LED lighting systems; Mazda has adopted LED lighting systems for the location of machining, plastic production and assembly sections. There were mainly the following three purposes. (1) Save electricity (2) prevent catching fire due to the aging of old lighting systems (3) Fade out to use fluorescent lighting system in order to obey Japanese law (Law Concerning Special Measures Against PCB Waste）

### **Activity type**

Process emissions reductions

### **Description of activity**

Other, please specify (Improvements for domestic logistics)

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

466

### **Scope**

Scope 3

### **Voluntary/Mandatory**

Voluntary

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

16300000

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

0

### **Payback period**

<1 year

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

6-10 years

### **Comment**

[ Implemented 5 - 12 ] Various improvements of efficiency for domestic logistics; Mazda has been implementing the various improvements of efficiency for domestic logistics. Although the following activities are not specifically new in this reporting year, Mazda is continuously taking unwavering improvement every year. Mazda got the following results in this reporting year. (5) There are the following two activities; \*Improvement of filling rate of packaging, and transportation efficiency of trucks by introduction of new packaging and wrapping. \*Effective use of the returnable container. (6) Mazda has improved the packing style of Milk-Run System and the load efficiency of delivery trucks by consolidation of logistics root in Japan. (7) Mazda has promoted the modal shift for domestic procurement parts. (8) Regarding the completed vehicles shipment in Japan, Mazda has improved the sea transportation efficiency by the realization of full load condition with the severe vacant space control. (9) Mazda has improved the load efficiency of delivery trucks by the introduction of new type packaging which realize a suitable packing ratio for service parts. (10) Mazda continuously improve the fuel consumption through the renewal of some domestic vessels. (11) Mazda introduced the large returnable containers in the process of the transportation of repair parts.(12) Mazda reduced the distance of transportation of unloading import parts in the port nearly production factory.

## **C4.3c**

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

|  |  |
| --- | --- |
| **Method** | **Comment** |
| Dedicated budget for energy efficiency | [Capital investment] Mazda does not invest only for the purpose of CO2 reduction. The one of precondition is that an economic efficiency can be expected from the reduction of energy use, another one is that the both environmental and business issues can be compatible. Then we judge according to the period of collecting investment whether we can invest, or not. However there are some exceptional cases, we may judge case by case, if the level of effect and continuance is excellent. |
| Compliance with regulatory requirements/standards | [Product line-up] There are several risks relating to "Current regulation", "Emerging regulation", "Market" and "Reputation". Specifically, the applications for fuel economy regulation and emission regulation for each country make the pressure for profit due to the cost increase. Mazda recognizes that the difficulty of application for coming regulation will be hard more and more gradually in the period of Mazda's medium-and-long term plan. Therefore Mazda is trying to minimize and avoid by not only through the activities of each environmental committee, but also by Mazda's business plan itself. |

## **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**

Product

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

Since 2013, Mazda has been leveraging "SKYACTIV TECHNOLOGY" to move forward with further restructuring. Mazda follow this strategy and promotes the continuous evolution of new generation products line, and develops the next-generation technologies, and introduces them. Mazda is making comprehensive improvements of base technologies "SKYACTIV TECHNOLOGY", with gradual introduction of electric devices, Mazda calls this development approach "Building-Block Strategy". In the case of internal combustion engine, approximately 80% CO2 emissions are discharged from "Use of sold products (category 11 of Scope 3)" process according to LCA, a method for calculating and evaluating the environmental influence of products across its entire life cycle of vehicle. It is very important to reduce this category car manufactures. As of the end of FY March 2016, Mazda has raised the average fuel economy of Mazda vehicles sold worldwide by 26% compared with 2008 levels. Furthermore, Mazda has been perfecting the internal combustion engine, it is “SKYACTIV-X engine” which sets to become the world’s first commercial gasoline engine to use compression ignition, announced in August 2017. This unique new engine combines the advantages of gasoline and diesel engines to achieve outstanding environmental performance and uncompromised power and acceleration performance. It improves fuel efficiency up to 20-30 percent over Mazda’s current gasoline engine and also increases torque 10 - 30 percent. Basically, it offers the driving performance of a 2-liter gasoline engine sports car with CO2 emissions of a 1.5-liter diesel compact car.

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

Low-carbon product and avoided emissions

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

Other, please specify (Inprove fuel economy in real world)

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

93

### **Comment**

As an example, the Light Duty Fuel Economy Trends Report, released by the US Environmental Protection Agency (EPA) on January 12, 2018, lists the company as having the highest overall Manufacturer Adjusted Fuel Economy for the 2016 model year. Mazda received the first-place ranking for the fifth year in a row.

## **C5. Emissions methodology**

## **C5.1**

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

### **Scope 1**

### **Base year start**

April 1 1990

### **Base year end**

March 31 1991

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

798800

### **Comment**

Energy consumption, greenhouse gas emissions are calculated using the energy conversion factor and carbon emission coefficient based on the standards of the Japan Automobile Manufacturers Association, Inc. (JAMA) (Commitment to a Low Carbon Society). Figures for consolidated subsidiaries and equity-method Group companies are prorated based on the percentage equity stake held by Mazda.

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

### **Base year start**

April 1 1990

### **Base year end**

March 31 1991

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

300500

### **Comment**

Greenhouse gas emissions are calculated using the carbon emission coefficient based on the standards of the Japan Automobile Manufacturers Association, Inc. (JAMA) (Commitment to a Low Carbon Society). CO2 emissions resulting from power consumption by overseas companies are calculated by applying the coefficient used in CO2 Emissions from Fuel Combustion (2013 Edition) published by International Energy Agency (IEA). Figures for consolidated subsidiaries and equity-method Group companies are prorated based on the percentage equity stake held by Mazda.

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

### **Base year start**

April 1 1990

### **Base year end**

March 31 1991

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

0

### **Comment**

Mazda does not use market-based electricity.

## **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.**

Other, please specify (Commitment to a Low Carbon Society)

## **C5.2a**

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

Energy consumption, greenhouse gas emissions are calculated using the energy conversion factor and carbon emission coefficient based on the standards of the Japan Automobile Manufacturers Association, Inc. (JAMA) (Commitment to a Low Carbon Society). CO2 emissions resulting from power consumption by overseas companies are calculated by applying the coefficient used in CO2 Emissions from Fuel Combustion (2013 Edition) published by International Energy Agency (IEA).

Figures for consolidated subsidiaries and equity-method Group companies are prorated based on the percentage equity stake held by Mazda.

The scope of data collection is Mazda Motor Corporation, all of both consolidated and equity-method Group companies.

## **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)**

135880

### **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 have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report 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**

616360

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

<Not Applicable>

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

<Not Applicable>

### **Comment**

## **C6.4**

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

No

## **C6.5**

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

### **Purchased goods and services**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

4518087

### **Emissions calculation methodology**

[ Data ] Mazda grasps the material volume (= weight) of every model type of produced vehicles in Japan. [ Calculation method ] Σ[ material volume (each model and each material） x CO2 emission coefficient (material by material)]

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

58

### **Explanation**

[ Object of calculation ] All vehicles produced in Japan.

### **Capital goods**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

58893

### **Emissions calculation methodology**

[ Data ] Mazda grasps the purchased items and amount of new additional capital goods. [ Calculation method ] Σ[amount of new additional capital goods (each item） x CO2 emission coefficient (item by item)]

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

58

### **Explanation**

[ Object of calculation ] New additional capital goods purchased by Mazda Motor Corporation.

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

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

85322

### **Emissions calculation methodology**

[ Data ] Mazda grasps the volume of purchased fuel, electricity and steam of all Mazda group companies. [ Calculation method ] Σ [volume of purchased fuel x CO2 emission coefficient of fuel +volume of purchased electricity x CO2 emission coefficient of electricity + volume of purchased electricity x CO2 emission coefficient of steam]

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

82

### **Explanation**

[ Object of calculation ] Mazda's four principal domestic facilities and five vehicle and powertrain plants.

### **Upstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

26750

### **Emissions calculation methodology**

[ Data ] Mazda grasps the volume of distribution (t x km/year) in Japan (Mazda and group companies). [ Calculation method ] Mazda calculates CO2 emission based on the volume of distribution according to "Act on the Rational Use of Energy".

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

58

### **Explanation**

[ Object of calculation ] Distribution activities related to purchasing parts in Japan.

### **Waste generated in operations**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

4558

### **Emissions calculation methodology**

[ Data ] Mazda grasps each type of waste volume and treatment method, and manages it with data base. This is regulated by the law (manifesto system). The division in charge properly handles. [ Calculation method ] Σ[ each type of waste annual volume x each CO2 emission intensity defined by the Ministry of the Environment ]

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

58

### **Explanation**

[ Object of calculation ] All waste from Mazda's four principal domestic facilities.

### **Business travel**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

10961

### **Emissions calculation methodology**

[ Data ] Mazda grasps number and amount of each type of business trip in data base. [ Calculation method ] Based on above mentioned data, Mazda calculates CO2 emissions according to the following CO2 emissions coefficients which are mentioned on guideline sourced by Japanese Ministry of Environment. Aviation: 0.00201㎏-CO2/Yen, Train: 0.00137㎏-CO2/Yen, Buss: 0.00242㎏-CO2/Yen, Ship: 0.0286㎏-CO2/Yen, Car: 0.00220㎏-CO2/Yen

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

45

### **Explanation**

[ Object of calculation ] All employees within Mazda Motor Corporation.

### **Employee commuting**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

3243

### **Emissions calculation methodology**

[ Data ] Mazda grasps number and amount of each type of business trip in data base. [ Calculation method ] Based on above mentioned data, Mazda calculates CO2 emissions according to the following CO2 emissions coefficients which are mentioned on guideline sourced by Japanese Ministry of Environment. Aviation: 0.00201㎏-CO2/Yen, Train: 0.00137㎏-CO2/Yen, Buss: 0.00242㎏-CO2/Yen, Ship: 0.0286㎏-CO2/Yen, Car: 0.00220㎏-CO2/Yen

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

45

### **Explanation**

[ Object of calculation ] All employees within Mazda Motor Corporation.

### **Upstream leased assets**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

Activities covered by this category are the use of leased facilities and the use of equipment (copiers, PCs, etc.) based on lease contracts. For the use of leased facilities, most of the emissions are already reported in Scopes 1 and 2, and we have ascertained that the remaining emissions not reported are extremely small.

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

100

### **Explanation**

[ Object of calculation ] Mazda group companies located in the building site of Mazda Motor Corporation.

### **Downstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

41310

### **Emissions calculation methodology**

[ Data ] Mazda grasps the volume of distribution (t x km/year) in Japan (Mazda and group companies). [ Calculation method ] Mazda calculated CO2 emission based on this volume of distribution according to "Act on the Rational Use of Energy".

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

58

### **Explanation**

[ Object of calculation ] Distribution activities of complete vehicles, service parts and KD (Knock Down) package in Japan.

### **Processing of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

Mazda had been selling the engines for forklift. However Mazda closed this business in FY March 2015. Mazda does not discharge the emission in this category since FY March 2016.

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

100

### **Explanation**

Mazda had been selling the engines for forklift. However Mazda closed this business in FY March 2015. Mazda does not discharge the emission in this category since FY March 2016.

### **Use of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

30799000

### **Emissions calculation methodology**

[ Data ] Mazda grasps the vehicle sales volume and condition of their use in major countries. [ Calculation method ] Mazda multiplies sales volume (unit), average fuel consumption (CO2 g/km), running distance (km/year) and life period (year) of each country.

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

63

### **Explanation**

[ Object of calculation ] All vehicles sold in Japan, North America, Europe and China.

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

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

405803

### **Emissions calculation methodology**

[ Data ] Mazda grasps the vehicle sales volume in major countries and intensity of end of life vehicle as LCA. [ Calculation method ] Σ[ sales volume (model by model） x CO2 emission intensity of end of life vehicle]

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

63

### **Explanation**

[ Object of calculation ] All vehicles sold in Japan, North America, Europe and China.

### **Downstream leased assets**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

Same calculation method as scope 1 and 2.

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

100

### **Explanation**

CO2 emissions of leased facilities occurred from Mazda's group company located in the building site of Mazda Motor Corporation. These are already reported in Scopes 1 and 2.

### **Franchises**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

No calculation in this category, since Mazda does not employ a franchise system.

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

100

### **Explanation**

No emissions are covered by this category since Mazda does not employ a franchise system.

### **Investments**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

Same calculation method as scope 1 and 2.

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

100

### **Explanation**

Regarding Mazda's group companies which Mazda holds the shares, since all emissions of these companies are reported in the boundaries of scope 1 and scope 2. Mazda excluded this category from the scope of calculation.

### **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**

0.217

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

752240

### **Metric denominator**

Other, please specify (Revenue in 100 million yen)

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

3474024

### **Scope 2 figure used**

Location-based

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

104.5

### **Direction of change**

Increased

### **Reason for change**

As the production volume increased, GHG emissions increased accordingly. On the other side, the intensity per total revenue was improved.

## **C7. Emissions breakdowns**

## **C7.1**

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

Yes

## **C7.1a**

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

|  |  |  |
| --- | --- | --- |
| **Greenhouse gas** | **Scope 1 emissions (metric tons of CO2e)** | **GWP Reference** |
| Other, please specify (CO2(Energy origin)) | 129560 | Other, please specify (Commitment to a Low Carbon Society)  *Mazda uses the emissions factors of Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation (Nippon Keidanren).* |
| Other, please specify (CO2(Not energy origin)) | 840 | Other, please specify (Commitment to a Low Carbon Society)  *Mazda uses the emissions factors of Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation (Nippon Keidanren).* |
| CH4 | 880 | Other, please specify (Commitment to a Low Carbon Society)  *Mazda uses the emissions factors of Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation (Nippon Keidanren).* |
| N2O | 1220 | Other, please specify (Commitment to a Low Carbon Society)  *Mazda uses the emissions factors of Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation (Nippon Keidanren).* |
| HFCs | 3350 | Other, please specify (Commitment to a Low Carbon Society)  *Mazda uses the emissions factors of Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation (Nippon Keidanren).* |
| SF6 | 30 | Other, please specify (Commitment to a Low Carbon Society)  *Mazda uses the emissions factors of Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation (Nippon Keidanren).* |

## **C7.2**

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

|  |  |
| --- | --- |
| **Country/Region** | **Scope 1 emissions (metric tons CO2e)** |
| Japan | 114120 |
| Thailand | 573 |
| China | 10765 |
| Mexico | 9322 |
| Other, please specify (The rest of world) | 1100 |

## **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)** |
| Mazda Motor Corporation | 86990 |
| Manufactures in Japan | 25410 |
| Non manufactures in Japan | 1720 |
| Manufactures in overseas | 21700 |
| Non manufactures in overseas | 60 |

## **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 | 135880 | <Not Applicable> |  |
| Transport services activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C7.5**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Country/Region** | **Scope 2, location-based (metric tons CO2e)** | **Scope 2, market-based (metric tons CO2e)** | **Purchased and consumed electricity, heat, steam or cooling (MWh)** | **Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)** |
| Japan | 501490 | 0 | 0 | 0 |
| Thailand | 40290 | 0 | 0 | 0 |
| China | 33233 | 0 | 0 | 0 |
| Mexico | 18987 | 0 | 0 | 0 |
| Other, please specify (The rest of world) | 22360 | 0 | 0 | 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)** |
| Mazda Motor Corporation | 417570 | 0 |
| Manufactures in Japan | 57040 | 0 |
| Non manufactures in Japan | 26880 | 0 |
| Manufactures in overseas | 92830 | 0 |
| Non manufactures in overseas | 22040 | 0 |

## **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 | 616360 | 0 | Mazda does not use market-based electricity. |
| 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**

30820110

### **Metric denominator**

p.km

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

218215258200

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

99.18

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

1017051

### **Vehicle lifetime in years**

16

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

13089

### **Load factor**

Load factor is one passenger according to a regulation. Therefore load factor is 1.

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

[ Calculation Method ] \*Metric numerator (Scope 3 emissions: use of sold products) in Metric tons CO2e = The average emission per kilometer per vehicle x The total number of all vehicle units sold in reported year x The average annual distance in kilometers x The average vehicle lifetime in years \*Numerical value of the denominator = The total number of all vehicle units sold in reported year x The average annual distance in kilometers x The average vehicle lifetime in years x Load factor Mazda calculated the weighted average of major markets such as Japan, North America, Europe and China.

## **C7.9**

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

Increased

## **C7.9a**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Change in emissions (metric tons CO2e)** | **Direction of change** | **Emissions value (percentage)** | **Please explain calculation** |
| Change in renewable energy consumption | 0 | No change | 0 | No significant impact. |
| Other emissions reduction activities | 4281 | Decreased | 1 | Since Mazda took the following emission reduction activities implemented during the year (Refer to C4.3b). [ Major measurement ] \* Countermeasure for steam supply loss \* Countermeasure for electricity supply loss \* Reduction of electricity consumptions by the size down-sizing of pumps and the change of heating system of injection machines \* Adoption of LED lighting systems [ Calculation method ] GHG emission reduction of C4.3b (Scope 2) : 4,281 metric tonnes of CO2e, Previous year Scope 1+2 emissions : 719,740 metric tonnes of CO2e, Emissions value (percentage) = -4,281 / 719,740 ＝ -1.0％ |
| Divestment | 0 | No change | 0 | No significant impact. |
| Acquisitions | 0 | No change | 0 | No significant impact. |
| Mergers | 0 | No change | 0 | No significant impact. |
| Change in output | 12535 | Increased | 2 | Mazda's global production volume increased 2% compared to the previous fiscal year. Due to this, the emissions increase accordingly. The following is its estimation. [ Calculation method ]（A) Reporting fiscal year production volume 1,619,532 unit ,（B) Previous fiscal year production volume 1,591,808 unit, (C) Increase ratio (Emissions value)＝（A)/（B) = 1.74% (D) Increased emission = Previous year Scope 1+2 emissions : 719,740 metric tonnes of CO2e x 1.74% = 12,535 metric tonnes of CO2e |
| Change in methodology | 0 | No change | 0 | No significant impact. |
| Change in boundary | 0 | No change | 0 | No significant impact. |
| Change in physical operating conditions | 0 | No change | 0 | No significant impact. |
| Unidentified | 0 | No change | 0 | No significant impact. |
| Other | 0 | No change | 0 | No significant impact. |

## **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?**

Location-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 | No |
| Consumption of purchased or acquired steam | Yes |
| Consumption of purchased or acquired cooling | No |
| Generation of electricity, heat, steam, or cooling | No |

## **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) | Please select | 0 | 558940 | 558940 |
| Consumption of purchased or acquired electricity | <Not Applicable> | 70 | 1018050 | 1018120 |
| Consumption of purchased or acquired heat | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired steam | <Not Applicable> | 0 | 348780 | 348780 |
| Consumption of purchased or acquired cooling | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of self-generated non-fuel renewable energy | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total energy consumption | <Not Applicable> | 0 | 1925770 | 1925840 |

## **C8.2b**

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

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

## **C8.2c**

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

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

Other, please specify (A heavy oil)

### **Heating value**

HHV (higher heating value)

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

7370

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

0

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

0

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

0

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

<Not Applicable>

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

<Not Applicable>

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

Other, please specify (C heavy oil)

### **Heating value**

HHV (higher heating value)

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

1470

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

0

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

0

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

0

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

<Not Applicable>

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

<Not Applicable>

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

Other, please specify (Kerosene)

### **Heating value**

HHV (higher heating value)

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

12200

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

0

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

0

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

0

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

<Not Applicable>

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

<Not Applicable>

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

Gas Oil

### **Heating value**

HHV (higher heating value)

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

14670

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

0

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

0

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

0

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

<Not Applicable>

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

<Not Applicable>

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

Other, please specify (Gasoline)

### **Heating value**

HHV (higher heating value)

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

18080

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

0

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

0

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

0

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

<Not Applicable>

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

<Not Applicable>

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

Propane Liquid

### **Heating value**

HHV (higher heating value)

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

31670

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

0

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

0

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

0

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

<Not Applicable>

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

<Not Applicable>

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

Town Gas

### **Heating value**

HHV (higher heating value)

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

378080

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

0

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

0

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

0

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

<Not Applicable>

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

<Not Applicable>

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

Other, please specify (Steam Coal)

### **Heating value**

HHV (higher heating value)

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

95130

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

0

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

0

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

0

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

<Not Applicable>

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

<Not Applicable>

## **C8.2d**

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

### **Gas Oil**

### **Emission factor**

68933

### **Unit**

metric tons CO2 per GJ

### **Emission factor source**

Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation （Nippon Keidanren)

### **Comment**

Mazda is using the same coefficient used by Japan Automobile Manufacturers Association, Inc.(JAMA), since 2014, in order to meet the Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation （Nippon Keidanren).

### **Propane Liquid**

### **Emission factor**

60133

### **Unit**

metric tons CO2 per GJ

### **Emission factor source**

Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation （Nippon Keidanren)

### **Comment**

Mazda is using the same coefficient used by Japan Automobile Manufacturers Association, Inc.(JAMA), since 2014, in order to meet the Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation （Nippon Keidanren).

### **Town Gas**

### **Emission factor**

51700

### **Unit**

metric tons CO2 per GJ

### **Emission factor source**

Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation （Nippon Keidanren)

### **Comment**

Mazda is using the same coefficient used by Japan Automobile Manufacturers Association, Inc.(JAMA), since 2014, in order to meet the Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation （Nippon Keidanren).

### **Other**

### **Emission factor**

70767

### **Unit**

metric tons CO2 per GJ

### **Emission factor source**

Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation （Nippon Keidanren) A ｈeavy oil: 70767, Cｈeavy oil: 74067, Kerosene: 68567, Gasoline: 68567, Steam Coal: 110733

### **Comment**

Mazda is using the same coefficient used by Japan Automobile Manufacturers Association, Inc.(JAMA), since 2014, in order to meet the Keidanren's Commitment to a Low Carbon Society by the Japan Business Federation （Nippon Keidanren).

## **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**

No purchases or generation of low-carbon electricity, heat, steam or cooling accounted with a low-carbon emission factor

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

### **Comment**

Mazda does not use market-based electricity.

## **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**

144

### **Metric numerator**

tCO2

### **Metric denominator**

Use phase: Vehicle.km

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

30820110

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

214557

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

99.18

### **Please explain**

[ Calculation Method ] \*Metric numerator (Scope 3 emissions: use of sold products) in Metric tons CO2e = The average emission per kilometer per vehicle x The total number of all vehicle units sold in reported year x The average annual distance in kilometers x The average vehicle lifetime in years \*Numerical value of the denominator = The total number of all vehicle units sold in reported year x The average annual distance in kilometers x The average vehicle lifetime in years Mazda calculated the weighted average of major markets such as Japan, North America, Europe and China.

## **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 (Vehicles equipped SKYACTIV Technology)

### **Metric figure**

1470000

### **Metric unit**

Units

### **Explanation**

Mazda sold over 1,470 thousand vehicles equipped SKYACTIV Technology in FY March 2018.

## **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**

April 1 2017

### **Investment end date**

March 31 2018

### **Investment area**

R&D

### **Technology area**

Other, please specify (Develop SKYACTIV Technology)

### **Investment maturity**

Applied research and development

### **Investment figure**

136000000000

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

81-100%

### **Please explain**

Mazda has expended 136,000 million yen for research and development in FY March 2018. This investment includes for the low-carbon transition initiatives such as the development of SKYACTIV Technology.

## **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**

[Verification Report for Mazda Motor Corp.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/rhCzWvILpEGVz1PBHVLfDw/VerificationReportforMazdaMotorCorp.pdf)

### **Page/ section reference**

Refer to [1. Objective and Scope] and [2. Procedures Performed] about the detail.

### **Relevant standard**

ISO14064-3

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

80

### **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**

[Verification Report for Mazda Motor Corp.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/rhCzWvILpEGVz1PBHVLfDw/VerificationReportforMazdaMotorCorp.pdf)

### **Page/ section reference**

Refer to [1. Objective and Scope] and [2. Procedures Performed] about the detail.

### **Relevant standard**

ISO14064-3

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

83

## **C10.1b**

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

### **Scope**

Scope 3- at least one applicable category

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

Annual process

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

Complete

### **Attach the statement**

[Verification Report for Mazda Motor Corp.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/rhCzWvILpEGVz1PBHVLfDw/VerificationReportforMazdaMotorCorp.pdf)

### **Page/section reference**

Refer to [1. Objective and Scope] and [2. Procedures Performed] about the detail. Mazda got the verification for Scope 3 (Category 3, 5, 6 and 7) as GHG emissions.

### **Relevant standard**

ISO14064-3

## **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?**

No, we do not verify any other climate-related information reported in our CDP disclosure

## **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)?**

No, but we anticipate being regulated in the next three years

## **C11.1d**

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

As a member of the Japan Automobile Manufacturers Association, Inc. (JAMA), Mazda continues to participate in "Pilot operation of unified domestic emission trading market and call for proposals for domestic credit system" voluntary by METI (Ministry of Economy, Trade and Industry), with the Japan Auto-Body Industries Association Inc.

Considering the case of introduction of carbon emissions trading system in Japan, we work in line with the activity lead by JAMA for preparation purpose. Based on the result of above JAMA activity, Mazda will analyze the risks and respond to the trading system.

## **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?**

No, and we do not currently anticipate doing so in the next two years

## **C12. Engagement**

## **C12.1**

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

Yes, our suppliers

Yes, other partners in the value chain

## **C12.1a**

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

### **Type of engagement**

Compliance & onboarding

### **Details of engagement**

Other, please specify ( Annual award for suppliers)

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

100

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

100

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

1

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

With the aim of reducing the environmental burden throughout its entire supply chain, Mazda engages in operation activities in compliance with the “Mazda Green Purchasing Guidelines”. These guidelines require all of its suppliers worldwide to undertake measures to reduce their burden on the environment, at all stages from product development to manufacturing and delivery. The guidelines also make it clear that Mazda will give preference in purchasing to suppliers who implement such environmental measures. Regarding GHG reduction, Mazda requires the following activities. \* Develop GHG emission reduction plan \* Propose environmentally conscious design, products and services \* Propose measure to reduce GHG in shipping process Mazda also requires its all major suppliers, including new suppliers, to obtain ISO 14001 certification, and continue to maintain certification. Under the Mazda Green Purchasing Guidelines, Mazda requires, through primary suppliers, secondary suppliers to establish EMS.

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

Every year, Mazda evaluates its suppliers in a comprehensive manner, and recognizes the outstanding suppliers with awards. In the awards, to improve and promote environmental performance of Mazda's vehicles, Mazda gives the special awards to suppliers that have made outstanding proposals on weight reduction, which greatly affects fuel efficiency.

### **Comment**

All primary suppliers are included in the initiatives of above mentioned scope of engagement .

## **C12.1c**

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

Mazda is progressively certifying all dealerships in Japan under EcoAction 21 (EA21)\*, an environmental management system, and the almost all of dealers have been certified. Also, Mazda has completed introduction of an exclusive Mazda EMS to all Mazda Group vehicle parts companies in Japan.

\*EA21: Simplified EMS established by the Ministry of the Environment, for application at companies of various scales, such as small-to medium sized companies.

The GHG reduction situations of all dealerships in Japan and all vehicle parts companies in Japan are grasped by the review process of the Mazda Green Plan 2020 (mid-term environmental plan) annually, and reflect them in the revision of next year's reduction target.

## **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

## **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 (Tax reduction for clean diesel vehicle) | Support | Although in the Japanese market, the preferential taxation (eco-car-tax reduction and special exceptional incentive) had been applied to the clean Diesel Engine(DE) vehicles, the study to exclude clean DE vehicles in the scheme after FY March 2020 is proceeding at the Japanese financial authorities. As a member of JAMA (Japan Automobile Manufacturers Association, Inc.), Mazda is lobbying and explained the importance of promotion of clean DE vehicles to the authorities in Japan, from the both view points of CO2 reduction and energy security. The current status is that the application scheme after FY March 2020 will be decided in FY March 2019. In addition, as a suggestion for future energy policy development for the authorities, Mazda has been reporting and submitting the importance of: - Fuel economy performance of vehicles in the real world and; - CO2 reduction by the viewpoint of “Well-to-Wheel (from digging to consumption)," at various opportunities, for the true prevention of global warming. | In August 2017, Mazda announced “Sustainable Zoom-Zoom 2030” amid radical transformations taking place in our industry worldwide. This is Mazda’s new initiative to use driving pleasure \_ the fundamental appeal of the automobile \_ to help solve issues facing the earth, society, and people for the long run, and Mazda set the goal to reduce Mazda’s corporate average “well-to-wheel” CO2 emissions to 50 percent of 2010 levels by 2030, with a view to achieving a 90% cut by 2050. Therefore Mazda is appealing the necessity of legal system and the importance of future policy examination based on “ Well-to-Wheel" viewpoint. |

## **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**

Japan Automobile Manufacturers Association, Inc. (JAMA), Clean Diesel Promotion Association

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

Consistent

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

The Japanese authorities have a target to achieve the ratio of advanced environmental vehicle accounting for 80% (including 5% of clean Diesel Engine(DE) vehicles) of total new vehicle sales by 2020. In this condition, Japan Automobile Manufacturers Association, Inc.(JAMA) insists on the necessity of incentive for advanced environmental vehicles to accelerate and surely achieve the target. Furthermore, to get peoples' understanding widely and enlighten them that the clean DE vehicles contribute to the low carbon society, Clean Diesel Promotion Association joins the environmental related local events (including test drive).

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

On the occasion of the revision study of Japanese taxation system on automobile for FY March 2020, Mazda is promoting to apply the preferential treatment for clean DE vehicles as one of the members of JAMA. Furthermore, when Clean Diesel Promotion Association plans and joins the environmental related events (including test-drive), Mazda's members also join such events as the presenters, and Mazda proactively promotes the advantage of clean DE vehicles.

### **Trade association**

Japan Automobile Manufacturers Association, Inc. (JAMA), Automobile Engineers of Japan, Inc., ISO/TC 204

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

Consistent

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

Regarding the establishment of ITS （Intelligent Transport System） which Japanese Government is promoting, Mazda joins this initiative as an member of Japan Automobile Manufacturers Association, Inc. (JAMA). In the case of automobiles, the realization of ITS will effect to reduce the traffic jams and CO2 emissions. For the movement of international, ISO/TC 204 (Technical committee of intelligent transport systems in ISO) is promoting ITS. This committee has working groups from WG1 to WG18, presently the chairperson of WG3 (ITS data base technology) and WG14 (Driving control) are from Japan, and Automobile Engineers of Japan, Inc. joins this initiative.

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

(1) With other automobile manufactures in Japan, Mazda joins in ITS Technical Subcommittee and ITS Planning Subcommittee organized in JAMA (Japan Automobile Manufacturers Association, Inc.), and promotes the proving test of infrastructure cooperative system aiming the realization of its practical use. (2) As a sub-member of System Implementation Working Group in Cross-Ministerial Strategic Innovation Promotion Program sponsored by Cabinet Office, Government of Japan, Mazda promoted the research and development. In addition, Mazda participated in international harmony activity as an International Cooperation Working Group sub-member. (3) One engineer from Mazda became the convener of WG14 (Driving control) of TC204 in May 2013, and he contributes to lead WG14 as the chair country.

### **Trade association**

Japan Automobile Manufacturers Association, Inc. (JAMA)

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

Consistent

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

Japan Automobile Manufacturers Association, Inc. (JAMA) is one of the major groups which join Japan Business Federation. JAMA leads to reflect the opinions of automobile industry on government policy and regulation, and Mazda works as one of the JAMA members.

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

Mazda joins each committee and working group of JAMA, and takes part in the Japanese Government environmental policy as the member of JAMA. As one of the specific approaches, Mazda joined Cool Choice (\*), led by the Ministry of the Environment, in line with the JAMA’s initiative from 2016. Also Mazda joined eco-driving campaign led by JAMA, and has been promoting internal and external communications and education initiatives. (\*)Cool Choice City is the event to promote the purchase of energy saving products for CO2 emission reduction.

### **Trade association**

Japan Automobile Manufacturers Association, Inc. (JAMA)

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

Consistent

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

The establishment of next fuel efficiency standard is one of important issues to be studied in Japan. Japan Automobile Manufacturers Association, Inc.(JAMA) is studying this issue.

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

Mazda joins the study committee on this issue as one of the members of JAMA. Mazda is in charge of the study and proposal drafting for the next generation standard for fuel efficiency and its operation system, considering the future technology trend.

## **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?**

As the answer described at question (C1.1a), Mazda's business strategy to address the issue of climate change is discussed and agreed by the members of Managing Executive Officers and above at CSR Management Strategies Committee being held twice a year in principle. The agreed strategy is reflected every year in several strategy of Product Environmental Committee, Business Site Environmental Committee and Social Contribution Committee (these are the substructure of CSR Management Strategy Committee). These three committees study the strategic initiative and target of each year and milestone till 2020, and take an action according to PDCA (Plan, Do, Check, Action) process. Then the results are reported at CSR Management Strategy Committee, and the direction from this committee is reflected on the revision of strategy and target for the next fiscal year. The activities described at question (C12.3a) and (C12.3c) are reported and managed properly in above mentioned Product Environment Committee, and then the results are reported at CSR Management Strategy Committee. The results are disclosed to public in Mazda's mid-term environmental plan "Mazda Green Plan 2020"(as the various targets about fuel economy and in the item of "Promote an integrated approach to traffic systems").

## **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 voluntary sustainability report

### **Status**

Underway – previous year attached

### **Attach the document**

[Mazda\_Sustainability\_Report\_2017.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/KwfAVnj0ikCFe1wzDeAyLg/MazdaSustainabilityReport2017.pdf)

### **Content elements**

Governance

Strategy

Emissions figures

Emission targets

## **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 | Representative Director President and CEO | Chief Executive Officer (CEO) |