# **Hyundai Motor Co - Climate Change 2018**

## **C0. Introduction**

## **C0.1**

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

Since establishing in 1967, today ‘Hyundai’ has developed as a global brand which represents Republic of Korea as a result of leading the growth of Korea car industry with the first-time, first-rank records and titles. Hyundai Motor thinks sustainability is for the future basis of growth. This is because performance-based business in short-term cannot assure the company’s future. Therefore, Hyundai Motor has done its best for value creation with setting ‘product responsibility’, ‘eco-friendly’, ‘cooperative company’, ‘employee’, and ‘local society’ as five sustainability values. Five values which the employee of Hyundai Motor has been made all over the world are in contact with the value of all the persons concerned including client, and it will be foundation for the company’s long-term growth and development. Our company completed the mass-production of IONIQ hybrid, electric vehicle, and plugged-in hybrid which are adapted 3 power-trains based on the world’s first platform for green car, and among them, hybrid and electric vehicle achieved result that is reached best fuel efficiency in American market. In 2013, Hyundai Motor opened to the future green car market through world’s first mass-production of hydrogen electric vehicle and put efforts for enhancement of system and popularization, thus the result will be released to the world market and society through hydrogen electric vehicle private-model in 2018. In 2017, Hyundai Motor celebrated 50th anniversary for its foundation. Not only Hyundai Motor has grown for global motor company in Republic of Korea which was car wasteland in the past half-century, but also it has thought for the sustainable future through diverse economic, environmental, social value creation as making the most of company’s feature. Hyundai Motor has challenged constantly to make car is able to be life companion, not just transportation and to make many people are able to live comfortable and enjoyable life through the car. For the future, Hyundai Motor will communicate and cooperate with all the persons concerned with creative and defiant stand. Despite sustainable global auto market, Hyundai Motor will effort for common value creation and win-win so that the year, 2017, can be a new chapter to open the future 50 years.

## **C0.2**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Start date** | **End date** | **Indicate if you are providing emissions data for past reporting years** | **Select the number of past reporting years you will be providing emissions data for** |
| Row 1 | January 1 2017 | December 31 2017 | No | <Not Applicable> |
| Row 2 | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Row 3 | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Row 4 | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C0.3**

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

Brazil

China

Czechia

India

Republic of Korea

Russian Federation

Turkey

United States of America

## **C0.4**

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

KRW

## **C0.5**

### **(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.**

Operational control

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

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

Light Duty Vehicles (LDV)

## **C1. Governance**

## **C1.1**

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

Yes

## **C1.1a**

### **(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.**

|  |  |
| --- | --- |
| **Position of individual(s)** | **Please explain** |
| Board/Executive board | Position in the corporate structure and responsibilities: The Board of Directors in Hyundai Motor as a high decision making organization includes 9 people by law: 4 executive directors and 5 outside directors. The Board votes for the items that laws and Articles of Incorporation set with the aim of sustainable growth and important agenda regarding company’s work process, and oversee the director’s and executives’ performance. Climate-related responsibility and Reason: The automobile industry faces unprecedented levels of risk. Specifically, as the operation regulation policy of diesel vehicles in Europe and India has started due to climate change, the environmental car market is rapidly growing in China and Europe while the demand of diesel cars are decreasing. As climate change affects Hyundai Motor's business strategy, planning, investment and Hyundai Motor lineup, the BoD regularly reports and executes major decisions on performance and plans of management including climate change. |

## **C1.1b**

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

|  |  |  |
| --- | --- | --- |
| **Frequency with which climate-related issues are a scheduled agenda item** | **Governance mechanisms into which climate-related issues are integrated** | **Please explain** |
| Scheduled – all meetings | Reviewing and guiding business plans  Setting performance objectives  Monitoring implementation and performance of objectives | As one of the core business strategies of Hyundai Motor, eco-friendly cars are closely linked to climate change. The policy of reducing greenhouse gas emissions in transportation due to climate change, energy efficiency (improvement of fuel efficiency), regulation of diesel vehicles, and eco-friendly vehicles (hydrogen cars, electric cars, etc.) are closely related to the sales of Hyundai Motor and future growth. PM Reporting Committee and Product Committee have participated in R&D director / sales director / finance and economy director / corporate strategy director and held the agenda including projects which are related with new development of eco-friendly vehicles such as electric vehicles and hydrogen vehicles and new regeneration energy project for establishing green factory, and so on for every month. The outcome of the agenda of the Product Commitment/PM Reporting Council is reported in the management performance by the director of Hyundai Motor's Finance and Economy Division, a member of the PM Reporting Commission/Product Committee, during the regular board meeting. After development, monthly management strategy meetings are held, and the meeting includes the production and sale of electric and hydrogen vehicles. |

## **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 | More frequently than quarterly |

## **C1.2a**

### **(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored.**

Hyundai Motor manages climate change and environment-related issues in two axes, both in terms of the business establishment-side and product-side.

1) Business establishment-side:

The Corporate Strategy Department under CEO, the member of the board of directors, supports the establishment of enterprise-wide strategic and action plans, GHG reduction goals and decisions related with the investment regarding the issues of global business sites climate change and environment-related. The company's strategy office operates the climate change response consultative group more than once a quarter, and it consists of the production headquarters, the heads of the plant's greenhouse gas departments and team leaders. The company implements an enterprise-wide policy by raising the decision level to the department/division/headquarter level based on agenda consultation and aging while discussing risks for responding to climate change, setting up the mid to long-term greenhouse gas reduction strategies and goals, finding reduction item and making investment decisions. The results of the consultative group's operation are reported to the Representative Director, and the Representative Director is the final decision maker of the applicable enterprise-wide strategy and the GHG reduction target and is responsible for the decision making and overall responsibility on the major issues.

2) Product-side:

Under the leadership of Vice Chairman (In-office Director on board) who is a member of the Board of Directors, Product Committee and PM Reporting Committee are held regularly once a month, and it is composed by the R&D director, head of sales and finance, and head of corporate strategy. Major issues such as regulations and trends of corporate climate change, strategies for promoting green business, current status of projects related to new development for full lineup of eco-friendly vehicles such as electric vehicles and hydrogen vehicles, and current status of new renewable energy projects(green factory) are reported by the business department on the agenda, discuss, and determine for major decision-making item. The results and the main points are reported to the Board of Directors regularly and are reported to executive direction in the Board of Directors(Representative Director, Vice President, President) if it is necessary. European regulations on CO2 are strengthening, and we are increasing and managing the sale of hydrogen and electric vehicles in Europe.

## **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**

Energy reduction target

### **Comment**

Each operating facility, departments, staffs, and employees responsible for energy use, are managed under the relevant issues index (the performance is evaluated on the basis of reduction target rated from A to D). HMC offers incentives by applying these individual/organizational KPIs to the performance system (e.g. annual salary increase).

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

Chief Executive Officer (CEO)

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Efficiency project

### **Comment**

He is responsible for the strategies for promoting eco-friendly vehicles, including response of climate change and improvement of car fuel efficiency and is provided in terms of incentive and salary system to reflect the achievement of the overall climate change strategy including the GHG reduction target and the performance of eco-friendly vehicles.

## **C2. Risks and opportunities**

## **C2.1**

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **From (years)** | **To (years)** | **Comment** |
| Short-term | 0 | 4 | 2017-2020 |
| Medium-term | 4 | 10 | 2020-2025 |
| Long-term | 10 | 35 | 2025-2050 |

## **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 | HMC operates a risk response council to initially respond to possible risk issues for overall management including climate change. It established a system to upload and share environmental issues and regulatory information in real time through environmental regulations and legal communication systems. It also operates monthly meeting of the product committee and PM Reporting Committee to maximize opportunities and prevent company-wide risks such as vehicle fuel efficiency and CO2 regulations and manages an international fuel efficiency monitoring system to continuously see the current status of fuel efficiency regulations. In addition, HMC shares the status of GHGs on a quarterly basis and responds to critical issues continuously by organizing GHG Council for Climate Change at its business site. HMC reviews and reflects on the adequacy of investment volume annually for regulatory responses. Our company strives to prevent any compliance issues by holding internal legal seminars. |

## **C2.2b**

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

1. Risk and opportunity assessment  
-(enterprise level) HMC has established and operated a task force for enterprise risk management to actively respond to the trend of diversifying and complicated global risks. We are strengthening the risk management by proactively responding to elements of the business environment that are uncertain at internal and external, and have implemented an enterprise-wide integrated risk system to utilize them as an opportunity factor for competitive advantage and strategic response. Through risk management’s enhancement of the prevention, we pursue strategies to minimize the negative impacts. HMC has implemented 'Environment Regulation Management System' for integrated regional environmental regulations and proactive compliance risk. Legal certification team monthly analyzes the trends for Climate Change regulations, but also expected to be strengthened regulation over the long term(by 2050). The cases identified as critical for the company’s operating are laid to Product Committee and PM Committee managing the compliance risk response long-term and connecting them with the business strategies. (individual asset level )Council for GHG response operates more than once a quarter, establishes response systems for responding to issues related to climate change, analyzes the business site's greenhouse gas emission plan and performance of green house gas reduction in financial perspective.

2. Introduction process to assess potential area of risk -   
HMC researches and analyzes on trends in the automotive industry, global regulation trends and other company cases in order to assess the risk of climate change. In addition, climate change managers shares the risks through the GHG consultative group if an enterprise-wide response is required. The derived climate change risk analyzes how much financial damage could be occurred when applied to the Company and assess the potential size based on this. Financial losses are then estimated the amount financially and assessed not only by actual losses from other company cases, but also by the Company for the possibility that the risks may cause plant line operations to be suspended or limit the sale of the product. For example, there were the cases where water pipes exploded in cold weather and roofs collapsed due to hail or heavy snow in other companies' business sites, so the company analyzed those cases what if the cases could be occurred in Hyundai business sites. Personnel in charge of Safety, plant engineering, utilities, and construction all gathered to discuss the issues, and the financial loss was potentially estimated at more than 100 billion won (KRW) if the factory roof collapsed. As a result of the assessment, HMC decided to reflect the seismic design and temperature of its buildings due to climate change, and the design was reflected in the construction of the headquarters building in Samsung-dong.

3. Process for determining the relative significance - With considering two factors, business impact and social interest, HMC selects the issues belonging to the top 20% of the 30 issues affected by the Company as 'LEVEL 5,' and issues belonging to the next higher 20 % are selected as 'LEVEL 4' and defines as 5 phases in the 20% interval. When assessing priorities, first, company collects sustainability-related issues through the review of related regulations and management policies. Second, it analyzes international organization index analysis (global guidelines such as UN Global Compact and DJSI), major media issues (positive or negative), and similar industry reports. Third, major issues are derived through internal issue analysis procedures considered risks management, business impact, and strategic association aspects. Priority of review approval considers preferentially over possible occurrence of identified risks, the possibility for opportunity conversion, and the impact of business where investment or improvement is needed. Each risk is divided into short-term, mid-term, and long-term, and then mitigation plan is developed and implemented for each risk.

4. Definition of significant financial impact - : We classifies the risks into potential risks related to climate change and major financial risks such as suspension of plant operations and prohibition of product sales. Although actual net loss during shutdown of plant due to blackout or weathering may be limited, it affects the finished product line in steps and global production line, thus it would be occurred huge loss of business profits as a result. Regulations that are directly related to product sales, such as strengthening regulations on fuel efficiency and prohibition of phased diesel vehicle sales, can be directly linked to HMC's maintenance, thereby they are classified to critical financial risks.

## **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 | In case of HMC, it implemented the target management system for greenhouse gas from 2011 to 2014. HMC has been designated as a quota company and has been taking part emission trading system as emission trading system has implemented in Korea since 2015.For the company, it submitted an application for allocation in 2014 and were informed of the allocation of the 1st plan period (2015-2017). Investment in greenhouse gas and energy reduction activities is needed to ensure that the quota is not exceeded, and a shortage of emission rights should be purchased if the emissions exceed the quota. If the shortfall is not purchased, a fine that is three times the average price of emission rights in the transitional year should be imposed under 'Enforcement Decree of the Act on Allocation and Trade of greenhouse gas emission rights.' When considering this, the amount to be reduced in 2017 from the Environment Ministry is 1,742,977tCO2e, and the company's financial impact is calculated at 348,595,400 won(KRW) if the amount is not reached at least 1%. (calculated at 20,000 won(KRW) per ton(KAU) as of June 2017.) The company is continuously evaluating the regulations(target management system and emission trading system) because of the financial risks, such as increased operating costs, increased manufacturing costs, and increased product sales, to achieve the goals of greenhouse gases reduction which is enhanced more than target management system. |
| Emerging regulation | Relevant, always included | Germany set a goal to reduce greenhouse gas emissions by 80% to 95% by 2050. The German Federal Senate adopted the resolution as part of the European Commission for Low-emission Mobility, which was launched after the signing of the COP21 Paris Agreement. And in July 2016, the EU Council announced a plan which is included 'Low carbon strategy in EU transport' to accelerate the transition to a low-carbon economic system throughout the entire EU economy as part of its plan to establish an energy alliance and as a climate change response policy. Through this, the German Bundesrat passed a resolution on September 23, 2016 to ban the sale of new internal-combustion engines (diesel and gasoline vehicles) from 2030 as part of climate change. The supply of pollution-free vehicles, including electric cars, is expected to become more active in the future, but HMC, which manufactures internal combustion engine cars, has influenced the European market's sales plans and has been affected by its high risk in sales and production. In addition, Germany as well as the EU and other member states are urged to ban new registration of internal combustion vehicles and participate in the supply of pollution-free vehicles such as electric vehicles and hydrogen vehicles by 2030. Germany's resolution to prohibit the sale of new internal combustion engines (diesel and gasoline vehicles) starting in 2030 is currently not legally binding, but Germany's regulations have served as a watershed for the EU and the UN European Economic Council (UNECE) to draw up the regulations. Therefore, it is expected that this will have a huge impact not only on Germany but also on the automobile industry. The European region accounts for about 18% of HMC's sales, so it is identifying the risks of losing opportunities for such revenues if it fails to respond to the regulations. Based on this, Hyundai Motor is always monitoring new regulations, including climate change regulations as essential items for assessing risks as they are closely related to our products. |
| Technology | Relevant, always included | A global policy for strengthening fuel efficiency is under way to address climate change and energy issues. United States, Japan, China and European countries have implemented regulations on fuel use to alleviate air pollution in the metropolitan areas' transport sector, while concentrating on the distribution and diffusion of electric cars in order to establish a clean transport system. The environmental contribution of the supply and diffusion of electric vehicles, in particular, is deemed to be to contribute to the air pollution and efficiency of energy use if the power supplied to electric vehicles can be supplied to clean power sources (such as new renewable energy) and excess power. In order to expand the supply of electric vehicles, the German government announced a plan to provide 1 billion euros (1 billion euros) in funding for purchasing subsidies and charging infrastructure for electric vehicles (2016), and Poland announced the plans to supply 1 million electric vehicles by 2025 (2016.9.20). In addition, China has been implementing various measures to support the new energy automotive industry, and accumulated sales of new energy vehicle has recorded the world's highest level by reaching roughly 500,000 units. If countries around the world fail to lead the technological changes due to various policies to reduce the amount of greenhouse gases emitted in the transportation sector, then the loss of opportunity in the market would be connected to financial loss and opportunity cost loss. In line with this, HMC is progressing a lot of investments to develop new energy vehicles. New energy vehicles are cars that use energy except gasoline and diesel, such as pure electric cars, plug-in hybrid vehicles and fuel cell vehicles. Based on the world's first platform exclusively for eco-friendly vehicles, the company completed mass production of three powertrain hybrid of IONIQ, electric vehicles and plug-in hybrid vehicles, and hybrid and electric vehicles ranked first in the U.S. market. In addition, HMC sold 527,000 units in the European market in 2017, increased 3.4% from the previous year due to the effect of the IONIQ Electric and Kona that are new. Even in the conservative European market, it is strengthening its position based on its technological prowess and excellence in design. |
| Legal | Relevant, always included | Global fuel efficiency regulations are being reinforced to reduce greenhouse gases, and in case of non-compliance, there is a legal risk with penalty. Furthermore, compliance with fuel efficiency regulations is one of the factors that consumers buy a car and they recognize that there may also be lawsuit risks regarding fuel efficiency. Recently, there has been a legal issue regarding fuel efficiency in the automobile industry, and our company manages such risks to prevent them from occurring. Our company strives to comply with regulations by co-development of new energy components, research on improving fuel efficiency with cooperators in order to prevent legality risks due to climate change. |
| Market | Relevant, always included | HMC is continuously increasing its production and development of eco-friendly vehicles to reduce greenhouse gas emissions and maintain its sustainability. The current unit cost of electric vehicles is higher than the equivalent internal combustion engine due to the price of batteries for electric vehicles. Prices of raw materials such as cobalt, lithium, and nickel, which are essential for making electric vehicle batteries, are increasing rapidly and are affecting production of electric vehicles. It is predicted that global sales of electric vehicles will reach 2.559,206 units by 2020. The number of raw materials for electric vehicle batteries is three times that of global sales (774,383 units) on last year, so demand of raw materials for electric vehicle batteries have increased. In particular, the supply shortage of cobalt, a key material used in electric vehicle batteries, has become more serious around the world, thus making it a major concern for the electric car and battery industry. Cobalt is a core metal that takes up about 10 to 20% of production cost of medium and large batteries and increases energy density and stability that is most important for batteries for electric vehicles. If HMC does not pre-prepare supply system for batteries, it can cause major disruptions in the future production and lose the opportunities in corresponding markets. As this will lead to financial losses and loss of opportunity costs, the Company is conducting real-time monitoring of raw material price fluctuations. In addition, HMC has recently been working on developing next-generation solid batteries along with its laboratory and partners. The company is monitoring R & D and price changes to efficiently address risks of rising raw material prices and is going to continue the lineup of eco-friendly vehicles eventually. |
| Reputation | Relevant, always included | HMC is required to provide transparent disclosure of the company's capabilities for policy and response related to climate change by various stakeholders, which directly affects the company's reputation. The disclosed information related to climate change is being used by external investors as a key factor of investment. With the recent growth of Social Responsible Investment (SRI), HMC is considering non-financial factors, such as environmental, social, and governance (ESG), which are affected corporate's sustainability as well as financial factors for long-term activity All the while, diesel based automobiles were regarded as the existence which can reduce the emission of greenhouse gases, but it recognized that actual diesel cars had limitations in reducing greenhouse gases. With recognizing the limitation, the necessity of innovatively change in its product portfolio to hydrogen and electric vehicles were arisen. The new portfolio was announced about the 38 types of eco-friendly vehicles would be increased by 2025 for responding to the climate change and the reputation matter. The National Pension Service ,one of the representative institutions that are making social responsibility investments, is a shareholder who owns 8.44 % of Hyundai Motor shares as of 2017 business report, and there is a risk of a fall in the market value of share prices due to reduced investment by shared investors with their reduced investment if the company does not properly respond to non-financial management items such as climate change and greenhouse gas reduction. As the recent paradigm for corporate valuation evaluation, such as growth of Social Responsibility Investment (SRI) funds and strengthening of corporate non-financial value evaluation, the demand for disclosure of policies on climate change has increased from various stakeholders. Therefore, if the climate change policy is not disclosed transparently to the stakeholders, investor confidence will drop and this will negatively affect the stock value of the company. In addition, if the company fails to properly respond to non-financial measures, it may have a risk of losing the investors as much as 8.44% of stock owned by the National Pension (approximately 2,886,523,990,000 KRW, number of shares held in National Pension : 18,588,077 / Hyundai Motor Company's stock price (based on business report, price of common stock |
| Acute physical | Relevant, always included | Changes in tropical cyclone (Hurricane and storm): As the intensity of typhoons increases due to climate change and frequency of occurrence also increases, HMC places its plant in Alabama, the southeastern region of the United States, which is heavily affected by summer tornadoes. In 2030, as greenhouse gas emissions will be expected to increase significantly compared to 2010, it will further intensify the inevitable weather changes such as hurricanes and typhoons, which will deal a significant blow to our business operations in the Americas. We intend to save energy by utilizing underground water storage and water storage when building new facilities to our laboratory. The new building in Samseong-dong will also introduce renewable energy (solar power plant, geothermal heat pump, fuel cell, energy storage system) facilities that can be applied to it and is under construction by using heat recovery system and highly efficient energy equipment. HMC estimates that if a tropical cyclone, such as a typhoon, stops operations at its domestic and overseas places of business and its headquarters, the company`s damage would be up to 9.36 trillion won(KRW) annually. In order to effectively respond to various internal and external risks, including the growing elements of the climate change, the company implements and operates the organization so that global risk management can be executed systematically by designating the risk management team and personnel for each global business site. |
| Chronic physical | Relevant, always included | Changes in average precipitation: The difficulty of water supply due to changes in average precipitation may affect increase of operating costs due to rising water unit costs. In addition, if product quality falls due to poor water quality, sales may decrease due to poor sales. It depends on the cause or size of the damage, but if the figure is estimated to be around 1 percent of the total sales, it will cost about 900 billion won(KRW). In order to reduce the amount of waste water generated by HMC's Asan plant, the company introduced a re-use facility (2008) for electro painting wastewater and factory car wash wastewater (2009) and re-processed the entire waste water as industrial water. It also reviews the industrial water infrastructure to establish plans for expansion of supply capacity, strives to reduce the water use through equipment and process improvement and proceeds 24 hours water quality monitoring for quality of products due to water quality. |
| Upstream | Not relevant, explanation provided | HMC does not consider the risk assessment process for increased greenhouse gas emissions and energy use by raw material suppliers. However, the company has prepared a cooperative system with the raw materials suppliers to help them develop technologies and prepare countermeasures to reduce energy use and distribute energy resources efficiently. In fact, the company collects, manages, and monitors the blackout management plans from 600 suppliers of tier 1 as a result of a failure in supply to the company's plant due to the blackout in business partners. In addition, the company manages greenhouse gas emission due to increase in production by Scope 3. HMC does not reflect upstream elements in the climate change risk assessment process, but it continues to monitor and manage the upstream of the change in greenhouse gas. |
| Downstream | Not relevant, explanation provided | The downstream part, such as logistics and product use of Hyundai Motor Company, is not considered in the climate change risk assessment process. However, Hyundai Glovis, which accounts for more than 70 percent of the company's logistics, and the company is processing to hold the meetings and consultations with the person in charge of climate change response. It is also actively supporting the low-carbon activities of Hyundai Glovis, including modal shift. In addition, the company's use and disposal part calculates the greenhouse gas emission of its products by utilizing the carbon footprint system, and seeks to accelerate the development of eco-friendly vehicles so that it can continuously reduce the amount of greenhouse gases. Regarding the product life cycle of HMC, it is reflecting in the climate change risk assessment process, including elements such as technology, market and new regulations. |

## **C2.2d**

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

1) Management Processes

HMC is operating a consultative group of risk response to respond to possible risk issues for overall management including climate change. Risks are managed in order of (1) major risk sensing (2) consultation process (Review of response plans for each part) (3) implementation of countermeasure (4) inspection of implementation. Consultative group of risks monitors risk through risk proactive inspection (twice a week, business risk management team). The selected core risks are reported annually and holds a risk forum quarterly with outside experts. In the event of emergency risks, it is establishing response measures through risk phenomenon and ripple analysis and is progressing the response to risks and follow-up activities.

2) Decision structure on climate change-related risk and opportunity management

The priorities of climate change risks and opportunity factors are summarized from 54 risk candidates through internal review and 10 candidates as secondary screening. Risks are defined as impact plots, probability of occurrence (2018-2050), and probability of control. Thus, the matrix for risks of climate change/the assessment opportunities is (1) the impact of the risk and opportunity factors is affected to business, and (2) the probability of occurrence of the risk and opportunity factors on the X and Y axes. Then, it is assessed its size as high, medium, and low according to detailed standards. If the criteria are assessed based on impact, prevalence and importance, and if the regulations such as suspension of sales are possible, the medium is used for the continuous diffusion of negative opinion, and low is a common issue in the automotive industry, and a detailed standard is established and managed. The X axis, which is the effect on the project, is assessed in detail by considering the ripple effects, such as financial impact, business opportunity and operation rights, reputation, etc. In the case of the financial loss, the same factors with the ripple effects on X axis are considered and assessed. The Y axis, which is the probability of occurrence and control are assessed by considering penalties (penalties, sanctions, etc.), disclosure of information of financial influence, and the magnitude of the cost and enforcement of government support projects. Risk/opportunity that are assessed as 'high' among values of X or Y axis are classified and managed as a major risk/opportunity factor. In the field of risk and opportunity related to the climate change in 2018, the company has drawn top priority on securing key capabilities related to the new business and strengthening the competitiveness of eco-friendly automotive products. HMC puts efforts into improving fuel efficiency and developing eco-friendly products.

3) transition Risks and Opportunities Cases

HMC has implemented regulations on fuel efficiency and emissions in all global regions and the priority of climate change risk and opportunity were assessed as a high for current regulations with the implementation of the automobile GHG tax system in 17 European countries. In addition, countermeasures and strategies have been developed to cope with growing regulatory crisis for refrigerant tires and fuel regulations, such as the planned implementation of replacement regulations for new refrigerant in Europe and United States. HMC is pushing to develop technologies for improving fuel efficiency for all car models and eco-friendly vehicles. On the other hand, the switch opportunity due to strengthen regulations on GHG were highly measured. An awareness and demand for eco-friendly cars have increased due to strengthen regulations on GHG. We could increase its sales as coping with product efficiency regulations and launching vehicles through espanding R&D activities and investments.

4) Physical Risks and Opportunities Cases

With Physical risks, such as abnormal temperature and tropical cyclone, management of non-financial risks, such as climate change factors, was selected as the top issue needed our priority assessment. In reality, Ulsan plant suffered damage due to the heavy snowfall in 2011, which caused the night shift to fail to perform its duties. In the event of abnormal weather conditions that can have a serious impact on business operation due to changes in precipitation patterns and drought climate change, HMC is strengthening and managing the safety prevention of disasters functions of each business site so that they can swiftly respond. The business sites ' risk management information are aggregated into the planning and strategy offices and quickly reported to the CEO to establish a management system for risks. On the other hand, we decided to increase the share of renewable energy to 15.7 percent in the construction of its new office building to respond to climate change proactively. Once the new building is completed, we will be able to improve its image with positive effect by increasing a ratio of renewable energy use.

## **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: 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**

In the case of Hyundai Motor Company, HMC had implemented a GHG target management system from 2011 to 2014, and HMC was designated as a target company because domestic emission trading system has been implemented since 2015, thereby designated HMC is also participating emission trading system. In the case of the Company, we were notified of the allocation of the 1st plan period (2015-2017) by submitting an application for allocation in 2014. Investment in greenhouse gas and energy reduction activities is needed to do not exceed the quota, and a deficiency of emission rights should be purchased if the amount is exceeded and GHG is discharged. If a deficiency is not purchased, a fine that equals to three times of emissions average price for transitional year shall be imposed according to the Enforcement Decree of the Act on the Allocation and Transactions of GHG Emissions. Financial risks could also arise, such as increased operating costs, increased manufacturing costs, and product sales rises to achieve the goals of strengthened GHG reduction than the target management system.

### **Time horizon**

Current

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

348595400

### **Explanation of financial impact**

The implementation of the emission trading system involves financial risk of the purchase of emissions or the imposition of fines according to quota of excess emissions. The amount of greenhouse gases that the company has to reduce is not a little according to reduction rate in the automobile industry. When taking into account this, the amount to be reduced in 2017 by the Ministry of Environment is 1,742,977tCO2e, assuming that this is not achieved by even one percent, the company's financial impact will be calculated at 348,595,400 won(KRW). (Calculated 20,000 won(KRW) per ton(KAU), based on June 2017).

### **Management method**

HMC is responding effectively to the emission trading system by actively implementing activities to reduce greenhouse gas emissions, focusing on products and business sites. In the short term, the company aims to increase fuel efficiency of existing internal combustion engines and to develop and distribute non-polluting vehicles in order to improve car efficiency and reduce CO2 emissions. To that end, it is considering easy to recycle, developing zero-car emission technology, and continuously reducing harmful substances in car manufacturing from the products design steps. As a result, HMC has achieved various international environmental certifications in the automobile sector and plans to continue working on developing eco-friendly vehicles in the future. Under the GHG reduction division for business sites, all sites and buildings are subject to strict greenhouse gas management. In addition to manufacturing plants that produce cars, the company is making aggressive efforts to reduce the greenhouse gas emissions at all sites, including those related to sales, services and buildings research related. In addition, HMC has a session to introduce the key issues of the market so that its suppliers can fully understand and respond to greenhouse gas emission trading system, and it also sees management of greenhouse gas emissions at partners as a key driving force, including sharing the difficulties that companies are currently facing and holding question.

### **Cost of management**

9908057783

### **Comment**

Hyundai Motor Company, which is subject to implementation of the emission trading system, is conducting emission reduction activities through people related to various reduction activities as mandatory emission reduction is imposed. In 2017, the company invested 9,908,057,783 won(KRW) in carrying out emission reduction projects related to improving energy efficiency.

### **Identifier**

Risk 2

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

Direct operations

### **Risk type**

Transition risk

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

Technology: Substitution of existing products and services with lower emissions options

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

Technology: Reduced demand for products and services

### **Company- specific description**

As the necessary exhaust and air pollutants in the production and use phases of automobiles have an impact on the air environment, HMC continuously develops and adapts the technologies to reduce air pollutants in plants and car exhaust, thereby the company tries to minimize air pollutants. For vehicles which are sold in Europe, emissions Euro-6 standards have been made for all vehicles since September 2015. This is a strengthened standard for existing Euro-5 provisions, emission toxic substances (carbon monoxide, nitrogen oxides, hydrocarbons), particulate matter (PM) and particle number (PN), especially nitrogen oxides in diesel vehicles are require a reduction of more than 55 % compared to Euro-5 criteria. Also, with standing out the importance of reducing emissions to the actual road, newly certified vehicles have been operating Real Driving Emissions test regarding nitrogen oxide and particle number on the actual road since September 2017. And as The Worldwide harmonized Light vehicles Test Procedure (WLTP) with more strengthened testing methods requires to measure the emissions and fuel efficiency in the laboratory, it can effect as a significant risk because fines are imposed accordingly if the standard is not accomplished.

### **Time horizon**

Short-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

1211160

### **Explanation of financial impact**

If loss is assumed as European sales of internal combustion engines is prohibited in 2017, the sales could suffer a financial loss of 121.116 billion won(KRW). The reason we used 1,211,160 instead of 12,116,000,000,000 is that ORS only allows maximum range is 0-999,999,999,999 for the column. When the currency of ‘Potential financial impact’ is considered as 100 million KRW, instead of 1 KRW.

### **Management method**

For diesel vehicles, as The Worldwide harmonized Light vehicles Test Procedure (WLTP) of testing methods is enhanced, emissions reduction system and engines that are compliant tests and enhanced testing methods have developed because emissions and fuel efficiency are measured in laboratory, thus reduction of vehicles emission is implementing, and the company strives technical development to improve it continuously.

### **Cost of management**

443600000000

### **Comment**

In the case of the company, it has invested 443.6 billion won(KRW) to improve fuel efficiency and develop eco-friendly vehicles in 2017 and will increase the investment to 469.96 billion won by 2022. In particular, if it looks at the investment amount in 2016, the company has been invested 190.1 billion won in the development of eco-car products and 253.5 billion won in relation to improving the fuel efficiency of automobiles.

### **Identifier**

Risk 3

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

Direct operations

### **Risk type**

Transition risk

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

Technology: Costs to transition to lower emissions technology

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

Reputation: Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions)

### **Company- specific description**

In order to address climate change and energy problems, the world is implementing a policy to strengthen regulations on fuel efficiency. Korea also announced a policy plan by the Ministry of Environment and the Ministry of Trade, Industry and Energy to strengthen the standard for greenhouse gases at 97 g/Km and fuel efficiency to 24.3 km/l by 2020. The Ministry of Trade, Industry and Energy will set the standards for fuel efficiency, and the Ministry of Environment will manage all items including performance management by manufacturers. The average GHG and fuel efficiency system of the automobiles should be managed by individual manufacturers to match the average greenhouse gas emissions and fuel economy performance of vehicles sold in the year as to compliant government-provided criteria. The system is already in effect in major car manufacturing countries such as the United States, the European Union, Japan and China. Car manufacturers such as Hyundai Motor Company must select and comply with one of the criteria for greenhouse gas or fuel efficiency, and the penalty will be imposed if the standard is not met so that it can be the critical risk factor.

### **Time horizon**

Short-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

1211160

### **Explanation of financial impact**

As of 2020, regulations on fuel efficiency in each country to prevent the air pollution are being significantly strengthened. Especially in Europe, the CO2 regulations will be enhanced to 95 g/km for standard of corporate average fuel efficiency, and it can be associated with serious financial risks and affect negative effects for brand images if it exceeds 1g (95€)\*(number of sales in Europe) and is not satisfied. if the company is unable to sell vehicles in the European market due to the air pollution regulations, it could incur a financial loss of 121.116 billion won(KRW). The reason we used 1,211,160 instead of 121,116,000,000,000 is that ORS only allows maximum range is 0-999,999,999,999 for the column. When the currency of ‘Potential financial impact’ is considered as 100 million KRW, instead of 1 KRW.

### **Management method**

HMC plans to develop electric cars, hybrid electric vehicles and hydrogen fuel cell vehicles by improving efficiency of vehicles with internal combustion engines. In particular, it is developing in four ways, such as reducing CO2 through high efficiency of existing internal combustion vehicles, maximizing fuel efficiency for power generation and transmission powertrains, minimizing energy loss, and utilizing renewable energy. It also plans to set a mid- to long-term goal by 2020 and increase investment in eco-friendly vehicles' RnD to achieve its goals. The company is currently developing a sport utility vehicle (SUV) and electric vehicle with a driving distance of 320 kilometers or more for a single charge with a goal of releasing it in the first half of next year and plans to introduce electric vehicles with a mileage of 400 kilometers or more in 2020. It also unveiled the concept of the FE hydrogen electric vehicle, which is the successor to the first commercial hydrogen electric vehicle, 'Tucson ix35,' at the recently opened Seoul Motor Show, and it is set to be developed next February to strengthen the eco-friendly car lineup. In addition, it plans to contribute to expanding base of the eco-friendly car market by supporting infrastructure along with successive releases of next-generation eco-friendly vehicles. Therefore, HCM will actively respond to the regulations on fuel efficiency and the provision of eco-friendly vehicles each country is implementing.

### **Cost of management**

443600000000

### **Comment**

In the case of the company, it invested 443.6 billion won(KRW) to improve fuel efficiency and develop eco-friendly vehicles in 2017, and it will increase the investment to 469.96 billion won by 2022. In addition, the company plans to invest 31.6 trillion won(KRW) in RnD investment in the mid- and long-term, and it will implement effective management of global fuel efficiency regulations by executing a 13.3 trillion won budget for eco-friendly vehicles and smart cars.

### **Identifier**

Risk 4

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

Direct operations

### **Risk type**

Transition risk

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

Market: Increased cost of raw materials

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

Reputation: Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions)

### **Company- specific description**

HMC is continuously increasing production and development of eco-friendly vehicles to reduce greenhouse gas emissions and maintain sustainability management. Rare-earth element is an important material for electric car, hybrid and hydrogen car motors, and prices of rare-earth have jumped as the demand for eco-friendly vehicles increases in worldwide. If there is a problem in making core components due to the surging prices of rare-earth element, it will not only increase the cost of producing eco-friendly vehicles but also affect the sales plan of electric vehicles due to supply problems.

### **Time horizon**

Short-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

400000000000

### **Explanation of financial impact**

Assuming that the limit of supply of rare-earth element will disrupt the supply of key parts, there could be as many as 10,000 losses with a financial impact of about 400 billion won(KRW). (Assuming production cost of one electric vehicle is 40 million won, and that about 30% of 30,000 electric vehicles (roughly 10,000 units) will be disrupted.)

### **Management method**

Hyundai Motor Company is monitoring changes in raw material prices in real time since it can cause major disruptions in production in the future if it does not have a supply system for battery core materials in advance. The company is continuously planning to complete the lineup of eco-friendly vehicles while monitoring R&D and price changes to efficiently resolve the existing risks of raw material prices increased. In case of the company, it invested 443.6 billion won (KRW) to improve fuel efficiency and develop eco-friendly vehicles in 2017, and it will increase the amount to 4,699.6 billion won by 2022. In addition, the company plans to invest 31.6 trillion won (KRW) in R&D investment in the medium to longer term and will implement the effective management of global fuel efficiency regulations by execution of a 13.3-trillion-won (KRW) budget for eco-friendly vehicles and smart cars.

### **Cost of management**

44360

### **Comment**

The reason we used 44,360 instead of 4,436,000,000,000 is that ORS only allows maximum range is 0-999,999,999,999 for the column. When the currency of ‘Cost of management’ is considered as 100 million KRW, instead of 1 KRW.

### **Identifier**

Risk 5

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

Customer

### **Risk type**

Transition risk

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

Reputation: Shifts in consumer preferences

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

Reputation: Reduced revenue from decreased demand for goods/services

### **Company- specific description**

It is required to provide transparent disclosure of the company's capabilities for policy and response to climate change, which directly affect the company's reputation by various stakeholders. In addition, the disclosed information is used by external investors as a key measure of the value of the company's investment as non-public financial information as well as financial information. With the recent growth of social responsibility investment, HMC is needed the implementation of management activities from long-term and active perspectives considering not only financial factor but also an ESG factor, environmental, social, and governance factors. The National Pension, one of the representative institutions that are making social responsibility investments, is a shareholder who owns 8.12% of HMC shares as of 2016 business report, and there is a risk of a fall in the market value of share prices due to reduced investment by shared investors with their reduced investment if the company does not respond to non-financial management items such as climate change and greenhouse gas reduction.

### **Time horizon**

Short-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

29071

### **Explanation of financial impact**

Due to the recent growth of Socially Responsible Investment (SRI) funds, and an increasing corporate value assessment based on non-financial information – there has been a growing pressure from various stakeholders to disclose corporate strategies and policies on climate change. Therefore, if HMC fails to provide to clients, investors, and stakeholders, the transparent disclosure of climate change policies or fails to actively respond, the company is at risk of losing credibility and having adverse effects on its stock value. Furthermore, if HMC fails to adequately respond to issues regarding climate change, GHG, energy conservation, and other non-financial measures, HMC is at risk of losing NPC as an investor and its stock holdings of 8.12% (2,907,165,625,000 KRW, number of shares held by NPC: 17,890,250 / Hyundai’s stock price 162,500 KRW). The reason we used 29071 instead of 2,907,165,625,000 is that ORS only allows maximum range is 0-999,999,999,999 for the column.

### **Management method**

All the while, the automobile industry thought that diesel cars would contribute to reduce the greenhouse gas emissions through existing internal combustion automobile products, but it recognized that actual diesel cars had limitations in reducing greenhouse gases. HMC also recognized the limitations of diesel cars in order to respond to climate change and the need to innovatively change its product portfolio to hydrogen and electric vehicles. HMC has newly established a product portfolio that will increase eco-friendly vehicles to 38 types by 2025, as failure to respond to climate change could deal a serious blow to the company's reputation. And HMC, by continuously publishing a sustainability report each year, provides a transparent disclosure of non-financial information regarding the company's ESG factors (Environmental, Social, Governance) to internal / outside stakeholders. Moreover, HMC, by participating in CDP (Carbon Disclosure Project), also provides a comprehensive range of non-financial information for investors every year. Especially, HMC is concentrating the company’s capabilities on its specified growth engines – development of green technologies, new materials, and green vehicles. Through such measures, HMC is enhancing its brand image as environmentally friendly and is effectively dealing with outside stakeholders. HMC spent 200 million KRW in cost on publishing sustainability reports and participating in CDP.

### **Cost of management**

200000000

### **Comment**

### **Identifier**

Risk 6

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

Direct operations

### **Risk type**

Physical risk

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

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

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

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

### **Company- specific description**

Acquiring water supply needed in the manufacturing process may be difficult due to drought induced by change of average rainfall. Also, deterioration in water quality may affect the quality of the product. These problems during preparation may affect production, which can directly influence sales performance of HMC. Therefore, it is necessary to establish measures that can reduce damages during production of products.

### **Time horizon**

Long-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

410000000000

### **Explanation of financial impact**

Induced by change of average rainfall, the difficulty of acquiring water supply may increase the water costs and thereby the operating costs. Moreover, if the quality of product decreases, due to water quality deterioration, it may lead to a decline in the volume of sales and fiscal sales. Through the cost of damage would differ depending on the circumstances of the reason and size of the damage, the cost is expected to be approximately 410 billion assuming it is about 1 percent of the total sales. (Estimated 2017 sales as of 41.6048 trillion KRW.)

### **Management method**

HMC is able to establish and operate task force of enterprise risk management in its headquarters to effectively respond to various internal and external risks, including the growing climate change factors. and the it has established the organization so that the global risk management team and staff can be assigned to each global business site for systematic execution of the global risk management. Through this, various risk factors surrounding HMC's business are monitored daily in each global region. In addition, scenario analysis and response direction are established, and the company is pushing for a proactive response for major risk factors that are able to occur.

### **Cost of management**

136155407433

### **Comment**

The company used 136.155 billion KRW (136,155,407,433 won) as cost to reduce environmental pollution in all domestic and overseas business sites, including the investment for the reduction of greenhouse gases, during 2017, and domestic business sites used 109.969 billion KRW (109,969,812,627 won) and overseas business site used 26.185 billion KRW (26,185,594,806 won).

## **C2.4**

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

Yes

## **C2.4a**

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

### **Identifier**

Opp1

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

Customer

### **Opportunity type**

Products and services

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

Development and/or expansion of low emission goods and services

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

Increased revenue through demand for lower emissions products and services

### **Company- specific description**

Moving with the global trend, South Korea is also tightening its regulations on CO2 emissions, in order to accelerate the development of green/low-carbon vehicles, by limiting the GHG emissions standards to 97g/km, while increasing the fuel efficiency standard to 24.3km/l. The Korean government's regulations can serve as an element of opportunity to HMC due to its outstanding technologies to produce green vehicles. HMC was the first company in the world to mass-produce FCEVs in 2013. It also demonstrated its superb technical prowess with vehicles, by selling 3,749 units of EVs and 7,399 units of IONIQ hybrid in 2016. Furthermore, by increasing the fuel efficiency of all vehicle models to comply with Corporate Average Fuel Economy standards, HMC is forecasted to gain its competitive edge for fuel efficiency in comparison to its rivals and raise the number of sales.

### **Time horizon**

Medium-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

41790

### **Explanation of financial impact**

The market value of green vehicles is expected to reach approximately 185 billion USD in 2025 (estimated by IEA, Frost & Sullivan). Assuming that HMC’s green vehicles market share for the year 2025 is projected at 20.0%, the expected revenues from global green vehicles will be 185 billion USD\* 0.2 = approximately 4,179 billion KRW. The reason we used 41,790 instead of 4,179,000,000,000 is that ORS only allows maximum range is 0-999,999,999,999 for the column. When the currency of ‘Potential financial impact' is considered as 100 million KRW, instead of 1 KRW.

### **Strategy to realize opportunity**

HMC, previously in 2008, announced its eco-friendly brand “Blue Drive” at the Los Angeles Auto Show held in Los Angeles, United States. Since, HMC, through the “Blue Drive” strategy, is continuously improving the fuel efficiency of automobiles. The “Blue Drive” strategy is continuously improving fuel efficiency via maximizing fuel efficiency of the internal combustion engine, minimizing energy loss, and utilizing renewable energies. At the same time, in order to respond to various geographical markets, HMC is developing biofuel cars such as Flexible Fuel Vehicle (mixture of gasoline and ethanol), ethanol, Biodiesel, CNG, etc. In 2013, FCEV was mass-produced in the world, empowered by a sustainable technological development securing a power performance and modularizing key components, developing low-cost materials, and developing means of mass-production. HMC, with the aim to strengthen the competitiveness of green vehicles, is developing the next generation FCEV, scheduled to be launched in February 2018.

### **Cost to realize opportunity**

4436

### **Comment**

In 2017, HMC invested 443.6 billion KRW to improve fuel efficiency and develop green vehicles, and HMC plans to increase the investment amount to 469.96 billion KRW by 2022. Specifically, looking at the amount invested in 2016, HMC invested 19.01 billion KRW, in product development of green cars and invested 25.35 billion KRW with respect to improving vehicle fuel economy. The reason we used 4,436 instead of 4436,000,000,000 is that ORS only allows maximum range is 0-99,999,999,999 for the column. When the currency of ‘Cost to realize opportunity' is considered as 100 million KRW, instead of 1 KRW.

### **Identifier**

Opp2

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

Customer

### **Opportunity type**

Products and services

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

Development and/or expansion of low emission goods and services

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

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

### **Company- specific description**

Globally, air pollution standards and related regulations are being strengthened. In particular, exhaust gases and air pollutants inevitably created during the production and usage of automobiles has had considerable impact on air quality. In the United States, the government is toughening air quality standards by lowering the limit of the ozone concentration to 70ppb; Korea has been seeking for alternatives to reduce particulate matters by temporarily shutting down thermal power generation plants, and/or increasing the price of diesel. In the case of Hyundai, which has workplaces throughout the globe, operated primarily with closely monitoring the air pollution regulation matters of each respective country. HMC has conducted business activities focused on developing products that prioritized regulatory compliance. Recognizing regulatory trends and developing proactive countermeasures can provide HMC with comparative advantages amongst its competitors.

### **Time horizon**

Short-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

30279

### **Explanation of financial impact**

Various national standards on vehicle fuel efficiencies have been strengthening to prevent atmospheric pollution, targeting the year 2020. Particularly, in Europe’s case, CO2 regulation of the corporate average fuel economy standard will be enhanced to 95g/ km. For every excess of 1g, the penalty is (95 €) \* (number of European sales). Failing to comply entails serious financial risks and, at the same time, it can adversely affect the brand image. Hyundai Motor is constantly developing eco-friendly vehicles to meet the fuel efficiency regulations, and HMC's European market share can be increased. Assuming that the European market share in 2021 is 25 percent, Hyundai Motor's global sales are estimated at 12.1116 trillion won \* 0.25 billion won = 3027.9 billion won. The reason we used 30,279 because ORS only allows maximum range is 0-99,999,999,999 for the column. When the currency of ‘potential financial impact' is considered as 100 million KRW, instead of 1 KRW.

### **Strategy to realize opportunity**

HCM conducts business activities prioritizing regulatory compliance in the global workplaces. In the case of vehicles sold in Europe, since September of 2015, all the model-type of the vehicles is manufactured to meet the Euro-6 emissions standards. This is a heightened standard for existing Euro-5, emission hazardous materials (carbon monoxide, nitrogen oxides, hydrocarbons), particulate matter (PM) and particle count (PN), especially nitrogen oxides in diesel vehicles require a reduction of more than 55 % compared to Euro-5 criteria. Also, with the importance of reduction for emissions on actual driving road, newly certified vehicles since September 2017 have been tested for the number of nitrogen oxides and particles (PN) on the actual road, and the company is developing emission reduction system. The automobiles sold in North America since 2015, are designed to meet the emissions Tier-3, LEV-III standard. Compared Tier-2, LEV-II standard, Tier-3, LEV-III standard further reduces smog and related hydrocarbons and oxides of by 80%. Moreover, the new standard required for reducing 70% of particular matter (PM). Thus, HMC is developing vehicles, in addition to the gas emitted during test-drives in the laboratory, the actual gas emissions on the real road. Domestically produced diesel vehicles since September of 2015 are produced in compliance with EURO-6 standards. Also, vehicles certified after September 2017 are in plans to test the nitrogen oxide emissions (RDE).

### **Cost to realize opportunity**

50000000000

### **Comment**

HMC will be able to reduce unnecessary penalty costs by minimizing these risks by improving average fuel efficiency and improving the competitiveness of hydrogen and electric vehicles that have high improvement effects for average fuel efficiency and can secure super credits by 2020. HMC also provided KRW 50 billion to parts suppliers in 2017 to improve fuel efficiency, develop environmentally friendly vehicles, and invest in environmental technology / facilities.

### **Identifier**

Opp3

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

Customer

### **Opportunity type**

Products and services

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

Development and/or expansion of low emission goods and services

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

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

### **Company- specific description**

Following the new climatic deal made in COP21, The IEA has predicted that new energy market worth 12.3 trillion KRW will be generated in the next 15 years. In 2015, the Korean government presented ‘Mid-to-Long Term 2030 New Energy Industry Diffusion Strategy” in order to response to GHG reduction regulations following the new climatic system and utilize climate change as a growth opportunity. The government plans to expand environmentally-friendly electric vehicle market, switch energy industry system to low-carbon operation site and Smarty Factory, develop relevant infrastructures and support businesses by 2030. Government’s new energy industry development policy would not only overturn climate change-related risks to opportunities, but give HMC opportunities for new industries.

### **Time horizon**

Current

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

75000

### **Explanation of financial impact**

The government announced that it will create 250,000 electric vehicle market by 2020 in 2017 special measures plan for micro dust management. HMC's domestic electric vehicle market share is about 60% (based on 2017 share sales). Assuming that the market share continues to be maintained until 2020, the market share can be estimated at 250,000 units \* 60% = 150,000. This provides about 7.5 trillion KRW worth of financial value (estimated at 50,000,000 KRW per electric car). The reason we used 75,000 because ORS only allows maximum range is 0-9 9,999,999,999 for the column. When the currency of ‘Potential financial impact' is considered as 100 million KRW, instead of 1 KRW.

### **Strategy to realize opportunity**

In 2014, HMC externally and internally announced its ‘2020.22.2 Project’ an environmentally-friendly vehicle development strategy. This project was launched with the goal of becoming the number 2 supplier of the world’s environmentally-friendly cars, and the plan has been expanded into establishing a line-up of 28 environmentally friendly cars by 2020. The company recorded a good performance, with 5,764 EVs and 242 FCEVs, 63,341 vehicles in the Green car lineup in total. HMC plans to secure and publicize its dominance in the environmentally-friendly vehicle market with full-line up of 3 styles of IONIQ model.

### **Cost to realize opportunity**

44360

### **Comment**

In case of the company, it invested 443.6 billion to improve fuel efficiency and develop eco-friendly vehicles in 2017. The reason we used 44360 because ORS only allows maximum range is 0-99,999,999,999 for the column. When the currency of ‘Cost to realize opportunity' is considered as 100 million KRW, instead of 1 KRW.

### **Identifier**

Opp4

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

Customer

### **Opportunity type**

Products and services

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

Shift in consumer preferences

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

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

### **Company- specific description**

Due to the supporting policies of green cars in Europe, United States, and other developed countries, the consumers’ purchasing pattern of automobiles is shifting towards fuel-efficient green cars that emit low amount of CO2. In actuality, the global market of automobiles is rapidly reorganizing with emphasis on green cars. Though the annual units sold of green cars in 2007 was around 500,000, by 2011 and 2013, the figure increased to 1 million and 1.96 million units respectively. Thus, globally, green cars accounted for approximately 2.3% of 84.2 million automobiles sold. In the case of Korea, green cars account for 2-3% of all new vehicles sold. Compared to Japan (22%), the United States (6-7%), and Europe (5%), and other countries, Korea’s proportion of green cars falls short of oversea levels. Accordingly, the Korean government plans to increase the proportion of green cars to 15% in the year 2020 by supplying 1 million green cars until the year 2020.

### **Time horizon**

Medium-term

### **Likelihood**

Likely

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

123300000000

### **Explanation of financial impact**

If 1 million green cars (200,000 electric vehicles, 800,000 hybrids) were to be supplied, there would be an annual GHG emissions decrease of 1.02 million tons (20,000KRW per ton) and oil consumption decrease of 437.9 million liters (total of 59.63 billion KRW, 200,006,274 liters of gasoline, 100,007,516 liters of diesel). Combined, a total of 708.7 billion KRW economic benefit and an increase of competitive edge in the automobile industry is expected. HMC’s potential value in the green car market = market economic benefit (616.7 billion KRW) \* HMC’s global market share (20%, as targeted for 2025) → value creation of approximately 123.3 billion KRW.

### **Strategy to realize opportunity**

“Blue Drive” is Hyundai Motor Company’s green car development strategy that includes hybrid electric vehicles. The technologies that will be showcased through “Blue Drive” is comprised of comprehensive low carbon green technologies such as high-efficiency internal combustion engine, biofuel, hybrid, plugin hybrid, electric vehicle, and hydrogen fuel cell electric vehicle (FCEV). These green technologies increase the car’s functional value such as performance, safety, and convenience while consuming less fuel. At the same time, the technologies decrease the amount of exhaust gas, including CO2. “Blue Drive” is HMC’s low carbon green technology strategy to decrease the amount of CO2 emissions. Simultaneously, it is the all-inclusive brand name for the green cars with these technologies integrated. HMC’s “Blue Drive” strategy is focused on increasing fuel efficiency and developing biofuel vehicles, hybrid vehicles, electric vehicles, and FCEV in short terms. “Blue Drive” strategy’s medium to long-term goal is to realize a CO2 free automobile market -- thus, HMC is planning to actively respond to the expanding green car market. Furthermore, HMC, by actively responding to consumer’s demands of low carbon products, will increase its competiveness in the green car market and brand value.

### **Cost to realize opportunity**

469960

### **Comment**

we will increase the investment to 4,699.6 billion won by 2022. By 2018, HMC plans to invest 13.3 trillion KRW in R & D to develop future vehicles and secure original technologies of core parts such as powertrains. The reason we used 469960 because ORS only allows maximum range is 0-99,999,999,999 for the column. When the currency of ‘Cost to realize opportunity' is considered as 100 million KRW, instead of 1 KRW.

## **C2.5**

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

|  |  |  |
| --- | --- | --- |
|  | **Impact** | **Description** |
| Products and services | Impacted | Demand and interest in eco-friendly vehicles have increased worldwide due to the environmental issues such as climate change and air pollution, thereby the risks, such as fuel efficiency, eco-friendly vehicles technology and consumer reputation are directly affecting to HMC. Hyundai Motor Company is actively responding to climate change regulations (such as fuel efficiency) on products and services and is increasing investment to improve fuel efficiency. It is also investing in development of the new business by converting risks into opportunities by actively investing in technologies for eco-friendly vehicles. Although it costs about 50 billion KRW per vehicle to develop electric cars, HMC is constantly trying to increase the share of electric cars. Among HMC's total vehicles (42 types) in 2017, eight types of eco-friendly vehicles account for about 20 percent of the total number of cars, and the company plans to continuously increase the eco-friendly vehicles line among total number of cars in the future. - Magnitude of impact : 42 types of vehicles are affected by climate change issues, and they are assessed by 100% of the sales percentage and 100% of magnitude of impact. |
| Supply chain and/or value chain | Impacted for some suppliers, facilities, or product lines | As demands for eco-friendly vehicles increase globally, HMC continues to expand production and development of electric vehicles. However, there is an increasing risk that the price of batteries for electric vehicles will rise because the prices of raw materials such as cobalt, lithium and nickel, which are essential for making batteries, are soaring. In particular, the lack of supply of cobalt, a key material used in electric vehicle batteries, is becoming more serious around the world, it is becoming the biggest concern in electric vehicles and battery industries. Cobalt is a core metal that takes up 10 to 20 percent of production cost of medium and large-sized batteries and serves to increase energy density and stability that is most important for electric vehicle batteries. According to the London Metal Exchange, the average price of cobalt is currently about $ 42 per pound (about 450 grams), which is three times higher than two years ago. Although increasing price has slowed recently, it is expected that there will be steady increase in medium and long-term. Therefore, Hyundai Motor Company has been monitoring changes in raw material prices in real time to hold a dominant position of the global market for electric vehicles and effectively respond to the changes in raw material price, and it is researching and investing the development of next-generation solid battery to replace with cobalt batteries by affiliating with battery company. - Magnitude of impact : HMC is currently assessing the magnitude of impact as medium-high currently as it needs to smooth supply and demand of batteries in order to achieve its goal of developing and producing electric vehicles continuously. |
| Adaptation and mitigation activities | Impacted | Hyundai Motor Company is conducting various reduction activities to mitigate climate change. The Company is a target company of energy target management and emissions trading systems, and emission reduction is essential in order to meet the GHG target emission. The company installed solar energy in its laboratory to convert the energy usage into renewable energy and recently installed ESS at its Ulsan plant. The Company is currently reviewing the possibility of investment and the cost of replacing if greenhouse gas emissions at business site lack more than 200,000 tons after 2020 and is replaced by solar energy. Solar energy will require investment of about 500 billion to 1 trillion KRW if solar energy is installed throughout its operations, thereby it is difficult to execute in short term, but it is under consideration for long-term implementation. - Magnitude of impact : The magnitude of impact is estimated as medium-high if the amount of the solar energy is considered the long-term investment with 500 billion to 1 trillion KRW. |
| Investment in R&D | Impacted | In order to address climate change and energy problems, the world is implementing a policy to strengthen regulations on fuel efficiency. Republic of Korea also announced a policy plan by the Ministry of Environment and the Ministry of Trade, Industry and Energy to strengthen the standard for greenhouse gases at 97 g/km and fuel efficiency to 24.3 km/h by 2020. Accordingly, Hyundai Motor Company is pushing for the development of electric vehicles, hybrid electric vehicles and hydrogen fuel cell vehicles by improving high efficiency of internal combustion vehicles. In particular, it is developing in four ways, such as reducing CO2 through high efficiency of existing internal combustion vehicles, maximizing fuel efficiency for power generation and transmission powertrains, minimizing energy loss, and utilizing renewable energy. The company is currently developing a sport utility vehicle (SUV) electric vehicle with a driving distance of 320 kilometers or more for a single charge with a goal of releasing it in the first half of next year and plans to introduce electric vehicles with a mileage of 400 kilometers or more in 2020. It is also developing the FE hydrogen electric vehicle, which is the successor to the first commercial hydrogen electric vehicle, 'Tucson ix35,' with the goal of release on next February. In this regard, the company plans to significantly increase its investment in R & D and invest 31.6 trillion KRW in the mid- to long-term in order to actively respond to regulations on fuel efficiency and the supply of eco-friendly vehicles in each country. - Magnitude of impact : Since our R & D investment can be viewed as an investment in response to climate change and policy of fuel efficiency regulations, the magnitude of impact is assessed as a high. |
| Operations | Impacted | Hyundai Motor Company indicates that environmental regulations related to climate change are affecting the sales volume of its products. 'Environmental regulation and correspondence communication system' are established and operated for integrated management of regulations on climate change and proactive compliance risk management, and information on climate change related policies by regions, regulations and legal trends are collected and analyzed through each regional office. Developing eco-friendly vehicles according to the regulations, the company manages to improve sales in domestic and overseas business sites due to climate change and minimize the suppression of sales by unmet regulations. The company has carried out various projects and activities to reduce the greenhouse gas emissions. In order to improve the efficiency of the process energy, such as energy reduction, as adapting temperature and humidity automation system in Asan plant, the entire business sites implemented reduction projects of 28 cases in 2017 and reduced GHG emissions. - Magnitude of impact : The cost of investments in reducing greenhouse gases in 2017 was around 3 billion KRW, and the magnitude of impact is assessed as medium, since the GHG reduction activity is being continuously performed in the entire operations every year. |
| Other, please specify | Please select | Not applicable |

## **C2.6**

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

|  |  |  |
| --- | --- | --- |
|  | **Relevance** | **Description** |
| Revenues | Impacted | Hyundai Motor Company is in progress to improve fuel efficiency of existing internal combustion engine vehicles and develop new energy vehicles, such as electric cars, hydrogen vehicles, fuel cell, as countries around the world are implementing various policies to reduce greenhouse gas emissions from transportation. All of the vehicles for the company, including the strict fuel efficiency regulations, the introduction of emission trading systems in EU and United States, and the support of tax system for eco-friendly vehicles in China, are affecting various regulations caused by climate change, it is directly affecting to sales, such as sales prohibition if the company does not comply with the regulations. Based on the platforms dedicated to eco-friendly vehicles for the first time in the world, the company completed the production of the hybrid with a 3 powertrains of Hyundai IONIQ, electric vehicles and plug-in hybrid vehicles, and hybrid and electric vehicles won title of fuel efficiency in U.S. market so the sales have been increased. In the European market in 2017, the market increased by 3.4% compared to last year due to the effect of new vehicles by the IONIQ electric cars and the Kona, accounting for 3.3% of the total market. It has been pushing for the development of the next generation powertrain 'Smartstream' by utilizing the technology that has generated the engines which are selected in the world's top 10 engines for eight times in the past decade. We will continue to strengthen the powertrain competitiveness in the future to improve fuel efficiency and power output. - Magnitude of impact : The magnitude of the impact is assessed as a high because the company's total sales products (internal combustion engine and eco-friendly vehicles) affect sales. |
| Operating costs | Impacted | Hyundai Motor Company's domestic business site is a business that is subject to emission trading system, so the company is required to achieve its goal of reduction of automobile industry and emit greenhouse gases within its allocated amount. The reduction quota that the company received in 2017 by the Ministry of Environment is 1,742,977 tCO2, and the financial impact will occur if this it not achieved. In addition, factories in China and the Czech Republic are also the plants that are subject to the emission trading system, while HMC is managing the GHG emissions of its entire operations to reduce greenhouse gas emissions. HMC's entire business site is responding effectively to the emission trading system based on its aggressive activities to reduce greenhouse gas emissions. In 2017, the company invested about 33.76 billion KRW to develop technologies for reducing greenhouse gases, repair and operation of air protection facilities. - Magnitude of impact : The company spent about 136.1 billion KRW on reducing environmental pollution at all domestic and overseas sites for reducing greenhouse gases during 2017, the magnitude of impact for GHG is assessed as a high because entire business site is using operation costs to reduce the greenhouse gases. |
| Capital expenditures / capital allocation | Impacted | To increase the supply of electric vehicles, which are eco-friendly vehicles to reduce greenhouse gas, an infrastructure for charging electric vehicles should be established. HMC in order to establish an infrastructure for charging electric vehicles, has invested 2.4 billion KRW with Kia to create a ' Korea Electric Vehicle Charging Service' company. The company also established the rapid charging facilities for electric vehicles at the gas stations as making a contract with SK Networks and direct management of SK gas stations and started pilot operation from January 2018. In the case of Hyundai's IONIQ electric, it takes 23 minutes to charge if using Hyundai's 100kW quick charger, and it is now able to advance charging time to 76% level. The construction and management of electric vehicle chargers will be carried out through the Korea Electric Vehicle Charging Service which has been invested in the future, and capital allocation (investment) is continuously planned through internal procedures and decision-making for additional infrastructure investments in the future. - Magnitude of impact : The company currently invested 2.4 billion KRW and plans to find ways to increase the supply of eco-friendly vehicles through capital investments in the future, thereby the magnitude of impact is assessed as medium. |
| Acquisitions and divestments | Not yet impacted | A buyout is being considered in two ways: 1) Aspect of competitiveness reinforcement: As it is expected to reduce the use of existing internal combustion engines and increase the proportion of electric and hydrogen cars due to climate change, the automobile industry is currently trying to take over battery manufacturer to strengthen its competitiveness in batteries. Due to changes in engine and battery motor composition costs, HMC is considering taking over batteries or motors to strengthen competitiveness within 5-10 years and is generally reviewing for buyout or in-house strategies. 2) Aspect of infrastructure: HMC plans to sell eco-friendly vehicles (electric vehicles) as well as internal combustion engines in India, Nepal and Peru. India, Nepal, and Peru need to utilize the infrastructure of their respective regions in order to increase the sales of electric vehicles, but their infrastructures are poor. The company recognizes the need to take over the local companies to strategically increase the sales of electric vehicles. For example, it is currently looking to operate a new business through capital investment with a local Indian company and to invest into infrastructures to export electric vehicles. In addition, HMC is considering a partnership with a battery company in China to sell electric vehicles, and it is considered for 5 to 10 year periods to create the system which is not currently planned to take over but is able to cooperate such as a joint venture. |
| Access to capital | Impacted for some suppliers, facilities, or product lines | HMC introduced solar and energy storage system(ESS) at its Ulsan plant to gradually increase the use of renewable energy. ESS is a system that stores produced electricity and can be used when needed, and government supports diverse measures to expand renewable energy and enhance efficiency of power industry. The Ulsan city was elected as a public offering of project to support revitalization of new industries for local energy by Ministry of Industry in 2016, and Ulsan plant of HMC concluded an agreement with the Ulsan city to invigorate an new industries for energy and to create industrial complex for energy convergence. Magnitude of Impact : The Company received a total of 700 million KRW in procurement support from the government and installed a total of 2,000 kWh of ESS facilities. The magnitude of impact is assessed as 'medium-high' as seeing the effects of energy consumption on the business site. |
| Assets | Not yet impacted | Although Hyundai Motor Company's main product is an internal combustion engine, it plans to continuously expand its ‘Bluedrive Brand’ on line of eco-friendly vehicles, and establish a strategy that reflects its goals of overall product sales plan. The company is considering to build a plant of smart factory to produce electric vehicles on production lines when it intends to build new plants according to the company's product sales goals. Although the current number of electric vehicle production is small when considering the overall sales volume, it is recognized that building a plant of smart factory is an internally necessary investment to gradually increase electric vehicle production in the future. The detailed plan to build a plant at which scale in which region is still being reviewed in the mid- to long-term direction, and the construction of a plant or production line of an eco-friendly car is being positively reviewed within the next 5-10 years. Further, if electric vehicle sales increase rapidly, the company is considering building production lines separately in Europe, China and elsewhere and will reflect them in its financial plan when constructing plants in the future. |
| Liabilities | Impacted | Hyundai Motor Company is a corporation subject to the Emissions Trading System and classifies GHG emission allowances as other intangible assets. The emission allowances granted by the government are measured as zero (0) and purchased emission allowances are measured as the cost at which they were bought. Furthermore, if the emission allowances allotted by the government are sufficient to fulfill obligations under the GHG emission liabilities incurred during the period of the implementation year, the emission liability is measured as zero (0). However, for emissions exceeding the limit on the total number of allowances allotted, the emission liability is measured as the best estimate at the end of the reporting period for expenditures that are expected to be incurred in fulfilling the liabilities. GHG emission-related liabilities are self-assessed as having a 'low to mid' influence on the company. |
| Other | Please select | Not applicable |

## **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.**

In development, we plan to complete it within the next 2 years

## **C3.1c**

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

i) Process for setting and changing the business strategies relating to climate change (i.e. internal process for collecting and reporting information to influence the strategy)

With the strengthening of domestic and overseas climate change regulations and an increase in societal demand for environmentally-friendly products, HMC has been preemptively responding to changes by analyzing climate change-related risks and opportunities. HMC receives information on each country’s regulations through government official’s or related associations and primarily consults with relevant sector such as laboratories. Also,

depending on the importance of the agenda, they are further assessed in the monthly Commodity Commission meeting. With regards to the assessed agenda, the management considers their influence and alliance with the

company strategy to make final approval and confirmation.

ii) At lease one example given of how the business strategy has been influenced (Case of Significant Business Decision)

The Namyang R&D center is Hyundai Motor Company’s largest R&D facility that was recently expanded – a 16% increase compared to the previous space area. The expansion was largely responsible for the 11.4% increase

in GHG emissions from the center. Sustained efforts have been made to reduce GHG emissions by improving energy efficiency. In late 2014, 920 million KRW was invested and a 500kw solar power generation facility was

installed on the rooftop of the pilot production plant. The solar panels installed are expected to generate 640,000kwh worth of electricity per year, and to contribute to a reduction in GHG emissions. Around 28 hundred

million KRW were invested to replace old light bulbs into 34,000 LEDs. HMC is making a number of other investments on environment-friendly facilities in order to comply with the South Korean Emissions Trading Scheme

(ETS). In addition, Hyundai Motor Company has invested heavily in the development of eco-friendly vehicles that can curb greenhouse gas and air pollution and improve energy efficiency. The company has developed hydrogen fueled vehicles, electric vehicles, and hydrogen electric vehicles for 'Zero Environmental Pollution.' Hydrogen fueled vehicles and hydrogen electric vehicles emit only water vapor, and it can see that environmental pollutants

are not generated by electric vehicles when using dump power and renewable energy. Thus, France replaced 12 or more diesel taxis with hydrogen electric vehicles, reduced CO2 and 4 tons of NOx by the end of 2017 and was composed of the sales for more than 700 units in 17 countries as gaining recognition the technology of the first hydrogen electric vehicle for reducing environmental pollution since it has showed in the market in 2013. And,

electric cars have started the investment heavily in improving energy efficiency as well as the environment, consequently it got result of achieving the first place for fuel efficiency in the U.S. market. Due to relevant result, the

IONIQ electric vehicles and the Kona set a record of 527,000 units in the European market, taking 3.3 % of the total market.

iii) What aspects of climate change have influenced the strategy? The increasing global salience of climate change gained traction in the regulations of each country over various domains. Among them, the Emissions Trading

Scheme (ETS) in Korea place impacts on HMC’s investment strategies on GHG emissions reduction at the facility level. Each facility is propelling its strategies on renewable energy and other new energy technologies. In

addition, the heightening standards on vehicle fuel efficiency are affecting the sales at the global level. Particularly, in order to respond to the recent introduction of WLTP (Worldwide Harmonized Light vehicles Test

Procedure) in Europe, China’s NEV (New Energy Vehicles) system, and Korea’s measure of climate change and fine dust, HMC is improving fuel efficiency of existing vehicles through high-efficient powertrains, developing new technology to improve the fuel efficiency for driving on the actual road and establishing and executing strategy of eco-friendly vehicles which are optimized for the regulations on fuel efficiency by regions. Bluedrive, the

eco-friendly brand of Hyundai Motor Company, is producing clean cars environment of 'environment pollution ZERO' through vehicles that are not emitted pollutants including carbon dioxide, and this eco-friendly strategy

that HMC pursues is the ultimate goal and intention point. Various efforts for GHG management activities of climate change have affected as an important factor in accelerating the release of its hydrogen fuel cell vehicles and electric vehicles which are eco-friendly vehicles of HMC, thereby the company released Tucson ix35 that is hydrogen fueled car successfully in 2013. HMC also proposed the new standard of eco-friendly vehicles as releasing

IONIQ hybrid(HEV) on January 2016, released electric vehicles(EV) on March and completed full-lineup for environmental vehicles by adding 'IONIQ plug-in' which is the model of plug-in hybrid(PHEV) that has economic

feasibility of EV and driving performance of HEV on February 2017

## **C3.1d**

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

|  |  |
| --- | --- |
| **Climate-related scenarios** | **Details** |
| Nationally determined contributions (NDCs) | The Paris Agreement aims to limit the average global temperature rise within 1.5 ℃ based on keeping the average global temperature rise significantly lower than 2 ℃ compared to industrialization beforehand. In order to reach this goal, the Paris Agreement mandated that each nation is determined its own Intended Nationally Determined Contributions (INDC) by itself, and nations are required to submit their upward reduction target every 5 years (Common or differentiated liability principles remain the same, so different national capabilities are still considered). Furthermore, the Paris Agreement enacts to implement mandatory establishing national GHG inventory, reporting on the progress of goal attainment for reduction, and so on. The company uses the computer system for analyzing scenario. Preferentially, the company has established a business strategy related to climate change through scenario of a linear regression analysis by establishing an organizational boundary as all business sites. HMC has set a target of reducing GHG emissions(absolute quantity) by 2050 based on 2016 emissions through linear regression analysis considering its 2030 GHG reduction roadmap. Based on the linear regression model results, through reduction related scenarios such as replacing the obsolete equipment change, applying for ICT technology application, and substituting the overseas business places’ electricity to the renewable energy, HMC has been regarded that we can reduce approximately 50% until 2050 compared with 2016’s GHG. However, HMC when analyzing the scenarios, has had the risks to be re-estimated because the enterprise’s growth rate has been conservatively calculated, thereby making the actual new factory construction, smart factory adoption, and increase the line being progressed. Through a variety of reduction activities and development of technology and through linear regression model results, HMC will make an effort in order to achieve the reduction objective. In addition, factors affecting energy usage, such as production volume, production schedule, and time for facility operation, are applied to estimate energy usage through linear regression analysis. Compared to actual energy usage, energy savings are calculated, and energy usage in mid- and long-term(2020-2035) is estimated and considered when establishing strategies. Through this process, the product lineup which is optimized to energy for each production region was established, and the company is doing computer monitoring in real time for the achievement of the regulations on fuel efficiency on global sales vehicles. Further, it is establishing mid- to long-term business plans by considering optimized lineup and supply of eco-friendly vehicles through scenario analysis using computer system. Each year, HMC plans to release one or more models dedicated to eco-friendly vehicles (electric vehicles) by 2025 and establishes responding to climate change and blackout for domestic production plants, laboratory and business partners by 2030. |

## **C4. Targets and performance**

## **C4.1**

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

Absolute target

## **C4.1a**

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

### **Target reference number**

Abs 1

### **Scope**

Scope 1+2 (location-based)

### **% emissions in Scope**

100

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

26

### **Base year**

2016

### **Start year**

2017

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

2668670

### **Target year**

2030

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

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

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

10

### **Target status**

Underway

### **Please explain**

To respond to the new climate change system (Post 2020), the government established the "2030 Framework Roadmap for reducing national GHG emissions," and announced Korea's mid- to long-term climate change strategies and specific action plans. Considering the capacity to reduce greenhouse gases by industry sector, the reduction rate (%) of the greenhouse gas by industry sector was announced by 2030, and the reduction rate of the car industry is 20.5% based on BAU. HMC sets its absolute target to reduce greenhouse gas emissions by 26% by 2030 for Scope 1 and 2, not based on the BAU. The 51% of long-term reduction target has been established. (To be explained more as reducing more.)

### **Target reference number**

Abs 2

### **Scope**

Scope 1+2 (location-based)

### **% emissions in Scope**

100

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

51

### **Base year**

2016

### **Start year**

2017

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

2668670

### **Target year**

2050

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

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

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

5

### **Target status**

Underway

### **Please explain**

On November 4, 2016, Paris Agreement, a new climate change system, took effect at the 21st Conference of Parties of the Climatic Change Convention(COP21). Accordingly, the Korean government proposed a 37% reduction in greenhouse gases by 2030 and concluded and announced the "2030 National Framework Roadmap for GHG Reduction" as part of its implementation strategy to accomplish (December 2016). According to the roadmap, the reduction target for the domestic sector was 219 million tons by 30 years with a reduction target rate of 20.5 % for the car industry. Hyundai Motor Company has re-settled its stated goal to reduce greenhouse gas emissions in order to accomplish the goal of GHG reduction by government mentioned and the goal of the Paris Agreement as representative automobile corporation of Korea. The reference year was established in 2016 to set well-defined target for reducing greenhouse gases, and the target for reducing greenhouse gases was set up to reflect all overseas operations in the scope of management of HMC. HMC plans to actively reduce greenhouse gas emissions by setting a target of 51 percent of reduction (absolute quantity) by 2050 compared to 2016. Based on 2016 emissions (2,668,670 tCO2), it will reduce total 1,371,770 tCO2 by 2050.

## **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 | 5 | 0 |
| To be implemented\* | 7 | 0 |
| Implementation commenced\* | 4 | 100 |
| Implemented\* | 38 | 106120.98 |
| 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**

Process optimization

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

70293

### **Scope**

Scope 1

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

10000630348

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

41106557702

### **Payback period**

4 - 10 years

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

11-15 years

### **Comment**

Process improvement (the improvement of the total of 28 different processes, such as improvement of load factor by merger of facilities, recovery of waste heat for high temperature through heat switch board and improvement of control ability by reinforcing measurement facilities)

### **Activity type**

Energy efficiency: Building services

### **Description of activity**

Lighting

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

17601

### **Scope**

Scope 1

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

2569633310

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

10193533240

### **Payback period**

4 - 10 years

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

11-15 years

### **Comment**

-Replacement of outdated (15 years or more) low-efficiency equipment to high-efficiency equipment (LED lights, air conditioning equipment, motors, boilers, etc.). - Improvement of air circuit in plants and office buildings and recovery of waste heat to strengthen efficiency of air conditioning and heating

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Machine replacement

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

2022

### **Scope**

Scope 1

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

502589331

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

2565727416

### **Payback period**

4 - 10 years

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

11-15 years

### **Comment**

Implementation of replacement of outdated and low-efficiency equipment for process efficiency (electric motors and air compressors)

### **Activity type**

Low-carbon energy installation

### **Description of activity**

Solar PV

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

636

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

2097500000

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

8390000000

### **Payback period**

1-3 years

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

11-15 years

### **Comment**

Renewable energy (Adaptation and operation of cogeneration and photovoltaic generating facilities 562kW)

### **Activity type**

Process emissions reductions

### **Description of activity**

Changes in operations

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

9440

### **Scope**

Scope 1

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

736744432

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

2751223925

### **Payback period**

1-3 years

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

11-15 years

### **Comment**

Execution reduction project in the part of process emissions such as Early Heat Source Replacement or RTO Waste heat recycling corporation, etc.

### **Activity type**

Other, please specify (Energy Campagin )

### **Description of activity**

<Not Applicable>

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

6128.98

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

8012033172

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

0

### **Payback period**

1-3 years

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

6-10 years

### **Comment**

The company has reduced its annual 6,128.98 tons through energy conservation campaigns, power outages in lunch time and recycling of reusable paper.

## **C4.3c**

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

|  |  |
| --- | --- |
| **Method** | **Comment** |
| Dedicated budget for energy efficiency | HMC is also required to set goals for reducing greenhouse gases and energy for its new building's construct, headquarters, laboratory and business sites. Currently, the company conducts annual management reviews on its performance and reports to the management including the CEO, which is a means to promote investment in emission reduction activities from a regulatory perspective. |

## **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**

HMC has announced its development strategy on eco-friendly vehicles called “2020.22.2 Project” in 2014, which shall be based on Blue Drive technology. Aiming to build more than 22 product-lines for eco-friendly vehicles, and to attain the second best rank in the market by 2020, the Company has focused its development in accordance and has reestablished the plan to increase the number of vehicle types to 28 by 2020. In 2016 and 2017 alone, a full line-up has been completed for three types of eco-friendly vehicles.

### **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**

Low-Carbon Investment (LCI) Registry Taxonomy

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

1

### **Comment**

Green vehicles constitute about 1% of the company’s global sales. (45,542 / 4,964831 as of 2015) HEVs and PHEVs increase fuel efficiency, decreasing CO2 emissions; and electric cars and hydrogen fuel cell vehicles incur “0” CO2 emissions, serving as an extremely effective measure to reduce CO2 emissions. In addition, in regards to low-carbon R&D, over 830 of 11,180 developers (7.4%) are responsible for developing Green vehicles.

## **C5. Emissions methodology**

## **C5.1**

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

### **Scope 1**

### **Base year start**

January 1 2010

### **Base year end**

December 31 2010

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

542936

### **Comment**

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

### **Base year start**

January 1 2010

### **Base year end**

December 31 2010

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

998988

### **Comment**

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

### **Base year start**

January 1 2010

### **Base year end**

December 31 2010

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

998988

### **Comment**

## **C5.2**

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

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

ISO 14064-1

Korea GHG and Energy Target Management System Operating Guidelines

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

## **C6. Emissions data**

## **C6.1**

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

### **Row 1**

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

805105

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

<Not Applicable>

### **Comment**

## **C6.2**

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

### **Row 1**

### **​Scope 2, location-based​**

We are reporting a Scope 2, location-based figure

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

We are reporting a Scope 2, market-based figure

### **Comment**

## **C6.3**

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

### **Row 1**

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

1797736

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

1771132

### **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**

782672.59

### **Emissions calculation methodology**

- Calculation : Number of sales of certified products which carbon labelling in 2017 \* GHG emission factor before manufacture = 782,672.59 tCO2eq - Certified products which carbon labelling in 2017 : IONIQ 1.6 Kappa Engine (DCT), Sonata Plug-in Hybrid Auto 6 Speed, Sonata Hybrid Auto 6 Speed, Aslan 3.0 Modern, Sonata 2.0 CVVL Style(Auto 6 Speed), Genesis 3.3 GDi 2WD, Sonata Hybrid (Premier A/T), Santafe(2.0 Auto 2WD Premium), i40(1.7 VGT Modern A/T), i30(GL, 1.6, Auto), i40 Smart 2.0, Veloster(UNIQUE, Manual), Accent(1.4 VVT PREMIER, Manual), 5G Grandeur Luxury(2.4L), Avante MD(M16 GDi 2WD Luxury), Tucson ix(2.0 2WD X2D Luxury), Sonata YF(Grand, Manual), - Total number of sales of certified products which carbon labelling in 2017 (Domestic sales) : 228,848

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

100

### **Explanation**

HMC has obtained and managed the certification which carbon labelling for its released major products. The number of sales of certified products which carbon labelling for year of 2017 was collected, reflected GHG emission factor before manufacture, and calculated the GHG emissions of purchased products and services.

### **Capital goods**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

212.65

### **Emissions calculation methodology**

- Data for desktops and laptops provided in 2016 are collected from each operation sites. The result is used to calculate GHG emissions factor and the subsequent amount of GHG emissions. - Total : 4,106 units - Calculation: Purchase quantity(4,106 units) \* (Production emission factor of capital goods) - Emissions of GHG = (Number of desktops purchased \* Emission factor of desktops) + (Monitors purchased \* Emission factor of monitors) = 212.65 tCO2eq - Emission factor of desktops : 35.39 kgCO2/unit (Average emission factor of certified products of carbon labelling) - Emission factor of monitors : 16.4kgCO2/unit (Emission factor of a 22-inch Samsung Electronics monitor) \*Emission factor of capital goods production : Using the emission factor of carbon labelling that is market

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

0

### **Explanation**

Emissions caused by the purchase of electronic devices used in office such as desktops, monitors, and laptops.

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

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

53863.99

### **Emissions calculation methodology**

GHG emissions calculated by the national emissions factor for purchased fuels GHG emissions = Amount of fuel purchased \* conversion factor (density)\* Emissions factor for producing each fuel type(LCI DB) Amount of fuel purchased : Gas/Diesel 8,914,073l, LNG 200,850,302 m3, indoor kerosene 441,801 l, propane 115,407 kg, gasoline 8016171 l and so on

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

0

### **Explanation**

HMC Calculated GHG emissions using national GHG emission factors for purchased fuels

### **Upstream transportation and distribution**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

HMC is computing the category 1 by including the emissions of purchased goods and services. HMC is deriving a carbon emission coefficient by reflecting upstream transportation and logistics values when calculating carbon performance indicators by product.

### **Waste generated in operations**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

51727.44

### **Emissions calculation methodology**

GHG emissions amount calculated by using the National GHG emissions factor for each waste processing method - GHG emissions amount = Amount waste generated by Waste type and Waste processing \* Emissions factor by waste type and processing method = 51,727.44 tCO2eq (Emissions factor of Carbon : Carbon labelling LCI DB(Reference from http://www.epd.or.kr/lci/co204.asp)) - Waste landfill: 276,906 kg, waste recycle : 316,031,829 kg, wastewater treatment : 535,773,129 kg

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

0

### **Explanation**

The amount generated by each waste type and disposal method at domestic business sites was collected and calculated waste GHG emissions.

### **Business travel**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

294896.5

### **Emissions calculation methodology**

- Methodology = Number of teams \* GHG emissions from sample team (Travel distance per transportation method (km)) × Emission factor per transportation method (kg CO2e/transportation method-km or kg CO2e/person-km))\*Total number of team\*Percentage of the number of team employees compared to the team sampled - Total GHG emissions= 49.47 tCO2 \* 1991 team \* 3 = 294,896.75 tCO2eq - Emission factor of private vehicles: 210 gCO2/person\*km , Emission factor of bus: 27.7 gCO2/person\*km, Emission factor of subway: 1.53 gCO2/person\*km, Emission factor of KTX: 30 gCO2/person\*km, Emission factor of flight: 150 gCO2/person\*km

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

0

### **Explanation**

The greenhouse gas emissions from business travel by each transportation method was calculated by using the information of business travel for employees from the team (Technical Management Team) sampled in 2017. One team was sampled, and the entire team's greenhouse gas emissions were calculated by using calculation of distance-based.

### **Employee commuting**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

27428.5

### **Emissions calculation methodology**

Total of 1070 busses utilized for employee commuting, of which most vehicles operate on diesel fuel. Calculation was made using the following assumptions: diesel vehicle fuel efficiency (3.75km/L), average commute time (3 hrs), average travel speed on a highway with 40km/h, and annual working days (245 days) Daily fuel consumption= Number of commuter buses (#) X operating time (hr) X average speed (km/hr) / vehicle fuel efficiency (km/L) = 1070\* 3\* 50 /3.75= 42,800L GHG emissions = fuel consumed\* heating value \* emission factor \* working days = 21800L \* 35.3 \*74.1 / 1000000 \*245 = 27,428.5 tCO2eq -Heating value of diesel : 35.3MJ/L (as per Energy Act) -Emission factor of diesel: 74.1tCO2/TJ (IPCC)

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

100

### **Explanation**

Estimation of GHG Emission by using commuting bus \*It was provided with information on mileage from an operation company of commuting bus.

### **Upstream leased assets**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

The company does not own any upstream leased assets, so the item is not relevant.

### **Downstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

748242.1

### **Emissions calculation methodology**

Amount of CO2 emissions from Glovis(Transportation + Vessel section) = 712,148 + 36,095 = 748,242.1 tCO2eq .

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

100

### **Explanation**

Hyundai Motor Company's products are shipped through Hyundai Glovis more than 70%, so CO2 consumption of its logistics was requested to Glovis for collecting GHG emissions from its transportation and vessel section.

### **Processing of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

151545.01

### **Emissions calculation methodology**

- Calculation : Number of sales of certified products which carbon labelling in 2017 \* GHG emission factor when processing = 157,545.01 tCO2eq - Certified products which carbon labelling in 2017 : IONIQ 1.6 Kappa Engine (DCT), Sonata Plug-in Hybrid Auto 6 Speed, Sonata Hybrid Auto 6 Speed, Aslan 3.0 Modern, Sonata 2.0 CVVL Style(Auto 6 Speed), Genesis 3.3 GDi 2WD, Sonata Hybrid (Premier A/T), Santafe(2.0 Auto 2WD Premium), i40(1.7 VGT Modern A/T), i30(GL, 1.6, Auto), i40 Smart 2.0, Veloster(UNIQUE, Manual), Accent(1.4 VVT PREMIER, Manual), 5G Grandeur Luxury(2.4L), Avante MD(M16 GDi 2WD Luxury), Tucson ix(2.0 2WD X2D Luxury), Sonata YF(Grand, Manual), - Total number of sales of certified products which carbon labelling in 2017 (Domestic sales) : 228,848

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

100

### **Explanation**

HMC has obtained and managed the certification which carbon labelling for its released major products. The number of sales of certified products which carbon labelling for year of 2017 was collected, reflected GHG emission factor before manufacture, and calculated the GHG emissions of purchased products and services.

### **Use of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

4937006.49

### **Emissions calculation methodology**

- Calculation : Number of sales of certified products which carbon labelling in 2017 \* GHG emission factor when using = 4,937,006.49 tCO2eq - Certified products which carbon labelling in 2017 : IONIQ 1.6 Kappa Engine (DCT), Sonata Plug-in Hybrid Auto 6 Speed, Sonata Hybrid Auto 6 Speed, Aslan 3.0 Modern, Sonata 2.0 CVVL Style(Auto 6 Speed), Genesis 3.3 GDi 2WD, Sonata Hybrid (Premier A/T), Santafe(2.0 Auto 2WD Premium), i40(1.7 VGT Modern A/T), i30(GL, 1.6, Auto), i40 Smart 2.0, Veloster(UNIQUE, Manual), Accent(1.4 VVT PREMIER, Manual), 5G Grandeur Luxury(2.4L), Avante MD(M16 GDi 2WD Luxury), Tucson ix(2.0 2WD X2D Luxury), Sonata YF(Grand, Manual), -Total number of sales of certified products which carbon labelling in 2017 (Domestic sales) : 228,848

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

100

### **Explanation**

HMC has obtained and managed the certification which carbon labelling for its released major products. The number of sales of certified products which carbon labelling for year of 2017 was collected, reflected GHG emission factor before manufacture, and calculated the GHG emissions of purchased products and services.

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

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

5956.42

### **Emissions calculation methodology**

- Calculation : Number of sales of certified products which carbon labelling in 2017 \* GHG emission factor when discarding = 5,956.42 tCO2eq - Certified products which carbon labelling in 2017 : IONIQ 1.6 Kappa Engine (DCT), Sonata Plug-in Hybrid Auto 6 Speed, Sonata Hybrid Auto 6 Speed, Aslan 3.0 Modern, Sonata 2.0 CVVL Style(Auto 6 Speed), Genesis 3.3 GDi 2WD, Sonata Hybrid (Premier A/T), Santafe(2.0 Auto 2WD Premium), i40(1.7 VGT Modern A/T), i30(GL, 1.6, Auto), i40 Smart 2.0, Veloster(UNIQUE, Manual), Accent(1.4 VVT PREMIER, Manual), 5G Grandeur Luxury(2.4L), Avante MD(M16 GDi 2WD Luxury), Tucson ix(2.0 2WD X2D Luxury), Sonata YF(Grand, Manual), - Total number of sales of certified products which carbon labelling in 2017 (Domestic sales) : 228,848

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

100

### **Explanation**

HMC has obtained and managed the certification which carbon labelling for its released major products. The number of sales of certified products which carbon labelling for year of 2017 was collected, reflected GHG emission factor before manufacture, and calculated the GHG emissions of purchased products and services.

### **Downstream leased assets**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

1134

### **Emissions calculation methodology**

Emissions calculated by collecting GHG emissions data from KIA. Kia-leased space (Private + Public) /Total space (Private + Public) \*Total building energy consumption= 1,134 tco2eq

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

100

### **Explanation**

Hyundai Motor Company's headquarters are being leased to Kia Motors, and its greenhouse gas emissions were calculated by collecting GHG emissions from Kia.

### **Franchises**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

HMC manages as Scope 1 and 2 for service center, branch, etc.

### **Investments**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

363661.6

### **Emissions calculation methodology**

- Calculation : GHG emissions of invested company \* investment share (%) = 363,661.6 tCO2eq - Companies reflecting when calculating GHG (holding company) : KIA Motors, Hyundai Wia, Hyundai PowerTech , Hyundai Dymos

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

100

### **Explanation**

HMC, a shareholder in charge of the decisions of the four owning companies, was responsible for requesting and collecting the greenhouse gas emissions from person in charge of each company (KIA Motors, Hyundai Wia, Hyundai PowerTec, Hyundai Dymos). It was prepared based on investment shares on IR report.

### **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**

2.701

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

2602842

### **Metric denominator**

Other, please specify (revenue total (per one hundred million))

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

963760.79

### **Scope 2 figure used**

Location-based

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

5.23

### **Direction of change**

Decreased

### **Reason for change**

Through operating enterprise-wide GHG response consultative group, PM Reporting Committee, and product committee (1) Along with planning greenhouse gas emissions and checking the performance, enhancing energy assessment/promotion activities, Improving efficiency in using energy multi-cost processes, expanding investment of energy reduction, (2) developing eco-friendly products and improving efficiency of vehicles production, improving fuel-efficiency, etc. The company performed active reduction activities. HMC's sales increased compared to 2016 due to improved sales of eco-friendly vehicles, thereby its emissions reduced by won(KRW) unit. 2016 GHG emissions : 2,668,670 tCO2eq, 2016 sales(KRW) : 936,490.24 million KRW, intensity figure: 2.850 2017 GHG emissions : 2,602,842 tCO2eq, 2017 sales(KRW) : 963,760.79 million KRW, intensity figure: 2.701 Rate of change compared to last year : (2017 emissions in KRW unit - 2016 emissions in KRW unit) / 2016 emissions in won unit \*100 = 5.23%

## **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** |
| CO2 | 803764 | IPCC Second Assessment Report (SAR - 100 year) |
| CH4 | 496 | IPCC Second Assessment Report (SAR - 100 year) |
| N2O | 845 | IPCC Second Assessment Report (SAR - 100 year) |
| HFCs | 0 | IPCC Second Assessment Report (SAR - 100 year) |
| PFCs | 0 | IPCC Second Assessment Report (SAR - 100 year) |
| SF6 | 0 | IPCC Second Assessment Report (SAR - 100 year) |

## **C7.2**

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

|  |  |
| --- | --- |
| **Country/Region** | **Scope 1 emissions (metric tons CO2e)** |
| Republic of Korea | 500306 |
| United States of America | 26769 |
| China | 147747 |
| India | 15429 |
| Turkey | 29883 |
| Czechia | 40718 |
| Russian Federation | 36371 |
| Brazil | 7882 |

## **C7.3**

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

By facility

## **C7.3b**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility** | **Scope 1 emissions (metric tons CO2e)** | **Latitude** | **Longitude** |
| Ulsan plant | 317007 | 35.538617 | 129.385986 |
| Asan plant | 44888 | 36.847105 | 126.868464 |
| Jeonju plant | 44955 | 35.948515 | 127.136278 |
| Research facility | 73508 | 37.15864 | 126.818919 |
| Headquarters private building | 9258 | 37.464503 | 127.043076 |
| Service center | 7452 | 37.53219 | 126.951892 |
| Sales private building | 3238 | 37.577916 | 126.987533 |
| USA production plant | 26769 |  |  |
| China/Beijing production plant | 142577 |  |  |
| China/Szechuan Hyundai production plant | 5170 |  |  |
| India production plant | 15429 |  |  |
| Turkey production plant | 29883 |  |  |
| Czech production plant | 40718 |  |  |
| Russia production plant | 36371 |  |  |
| Brazil production plant | 7882 |  |  |

## **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 | 483447 | <Not Applicable> | Total of production plants in entire GHG scope 1 emissions. |
| 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)** |
| South Korea | 1024190 | 1024190 | 2201159 | 0 |
| United States of America | 124914 | 124914 | 250606.1 | 0 |
| China | 239246 | 239246 | 511665.2 | 0 |
| India | 249661 | 249661 | 301126.2 | 0 |
| Turkey | 27181 | 18845.47 | 58526.3 | 0 |
| Czechia | 95723 | 77454.63 | 161714.2 | 0 |
| Russian Federation | 32578 | 32578 | 72423.6 | 0 |
| Brazil | 4243 | 4243 | 61228.6 | 0 |

## **C7.6**

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

By facility

## **C7.6b**

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

|  |  |  |
| --- | --- | --- |
| **Facility** | **Scope 2 location-based emissions (metric tons CO2e)** | **Scope 2, market-based emissions (metric tons CO2e)** |
| Ulsan plant | 611736 | 611736 |
| Asan plant | 99096 | 99097 |
| Jeonju plant | 84130 | 84130 |
| Research facility | 177816 | 177816 |
| Headquarters private building | 21573 | 21573 |
| Service center | 14410 | 14410 |
| Sales private building | 15428 | 15428 |
| USA production plant | 124914 | 124914 |
| China/Beijing production plant | 220440 | 220440 |
| China/Szechuan Hyundai production plant | 18806 | 18806 |
| India production plant | 249661 | 249661 |
| Turkey production plant | 27181 | 18845.47 |
| Czech production plant | 95723 | 77454.63 |
| Russia production plant | 32578 | 32578 |
| Brazil production plant | 4243 | 4243 |

## **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 | 1568508 | 1541907 | Total of production plants in entire GHG scope 2 emissions |
| 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**

6.933

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

4937006.49

### **Metric denominator**

p.km

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

712128000000

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

5.67

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

237376

### **Vehicle lifetime in years**

10

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

12000

### **Load factor**

2.5

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

HMC’s sales volume in 2017 increased 52000 vehicles from the last year 2016. the Emissions intensity figure in 2017 is 0.000006933. we enter 6.933 instead of 0.000006933 in emissions intensity figure column. The reason we used 6.933 instead of 0.000006933 is that ORS only allows maximum 6 decimal for the column.

## **C7.9**

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

Decreased

## **C7.9a**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Change in emissions (metric tons CO2e)** | **Direction of change** | **Emissions value (percentage)** | **Please explain calculation** |
| Change in renewable energy consumption | 10742.21 | Decreased | 0.39 | Hyundai Motor Company is making a lot of efforts to save the energy with the aim of building an eco-friendly plant. It reduced 455.21tCO2 through solar power plants in the laboratory. It also reduced 10,287tCO2 through the use of waste heat (steam) of the Ulsan plant. Change rate of emissions(%) = Amount of carbon emissions reduction due to reduction activities / Carbon emissions in 2016 (10742.21/2,668,670 tCO2)\*100 = 0.39% |
| Other emissions reduction activities | 106120.98 | Decreased | 4 | HMC is seeking to establish and operate a consultative group in response to greenhouse gases at its business site, and to continue its efforts to improve power-saving/process efficiency: Reduced GHG emissions by 106,120.98 tCO2e compared to 2016 through introducing high-efficiency lighting, cogeneration and introducing high efficiency equipment. Emission value (%) = Amount of carbon emissions reduction due to reduction activities / Carbon emissions in 2016 (106,120.98/2,668,670 tCO2)\*100 = 4.0% |
| Divestment |  | <Not Applicable> |  |  |
| Acquisitions |  | <Not Applicable> |  |  |
| Mergers |  | <Not Applicable> |  |  |
| Change in output |  | <Not Applicable> |  |  |
| Change in methodology |  | <Not Applicable> |  |  |
| Change in boundary |  | <Not Applicable> |  |  |
| Change in physical operating conditions |  | <Not Applicable> |  |  |
| Unidentified |  | <Not Applicable> |  |  |
| Other |  | <Not Applicable> |  |  |

## **C7.9b**

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

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 | Yes |

## **C8.2a**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Heating value** | **MWh from renewable sources** | **MWh from non-renewable sources** | **Total MWh** |
| Consumption of fuel (excluding feedstock) | HHV (higher heating value) | 0 | 1245963.67 | 1245963.67 |
| Consumption of purchased or acquired electricity | <Not Applicable> | 0 | 3618448.82 | 3618448.82 |
| Consumption of purchased or acquired heat | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired steam | <Not Applicable> | 17953.96 | 0 | 17953.96 |
| Consumption of purchased or acquired cooling | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of self-generated non-fuel renewable energy | <Not Applicable> | 0.74 | <Not Applicable> | 0.74 |
| Total energy consumption | <Not Applicable> | 17954.7 | 4864412.49 | 4882367.19 |

## **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 | Yes |
| 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)**

Liquefied Natural Gas (LNG)

### **Heating value**

HHV (higher heating value)

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

1086427.85

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

0

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

579920.44

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

453307.82

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

53199.6

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

<Not Applicable>

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

Kerosene

### **Heating value**

HHV (higher heating value)

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

529

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

0

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

529

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

0

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

0

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

<Not Applicable>

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

Petrol

### **Heating value**

HHV (higher heating value)

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

1280.41

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

0

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

1280.41

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

0

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

0

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

<Not Applicable>

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

Diesel

### **Heating value**

HHV (higher heating value)

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

71753.27

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

8.47

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

71744.81

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

0

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

0

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

<Not Applicable>

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

Butane

### **Heating value**

HHV (higher heating value)

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

84954.6

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

1285.99

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

83668.61

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

0

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

0

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

<Not Applicable>

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

Propane Gas

### **Heating value**

HHV (higher heating value)

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

790.16

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

0

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

790.16

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

0

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

0

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

<Not Applicable>

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

Other, please specify (steam)

### **Heating value**

HHV (higher heating value)

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

228.47

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

0

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

228.47

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

0

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

0

### **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.**

### **Butane**

### **Emission factor**

0.0631

### **Unit**

metric tons CO2e per GJ

### **Emission factor source**

National Guidelines on GHG emissions/energy target management which uses the IPCC Fourth Assessment Report (SAR - 100 year)

### **Comment**

### **Diesel**

### **Emission factor**

0.0741

### **Unit**

metric tons CO2e per GJ

### **Emission factor source**

National Guidelines on GHG emissions/energy target management which uses the IPCC Fourth Assessment Report (SAR - 100 year)

### **Comment**

### **Kerosene**

### **Emission factor**

0.0719

### **Unit**

metric tons CO2e per GJ

### **Emission factor source**

National Guidelines on GHG emissions/energy target management which uses the IPCC Fourth Assessment Report (SAR - 100 year)

### **Comment**

### **Liquefied Natural Gas (LNG)**

### **Emission factor**

0.561

### **Unit**

metric tons CO2e per GJ

### **Emission factor source**

National Guidelines on GHG emissions/energy target management which uses the IPCC Fourth Assessment Report (SAR - 100 year)

### **Comment**

### **Petrol**

### **Emission factor**

0.0693

### **Unit**

metric tons CO2e per GJ

### **Emission factor source**

National Guidelines on GHG emissions/energy target management which uses the IPCC Fourth Assessment Report (SAR - 100 year)

### **Comment**

### **Propane Gas**

### **Emission factor**

0.0631

### **Unit**

metric tons CO2e per GJ

### **Emission factor source**

National Guidelines on GHG emissions/energy target management which uses the IPCC Fourth Assessment Report (SAR - 100 year)

### **Comment**

### **Other**

### **Emission factor**

0.2149

### **Unit**

metric tons CO2e per MWh

### **Emission factor source**

National Guidelines on GHG emissions/energy target management which uses the IPCC Fourth Assessment Report (SAR - 100 year)

### **Comment**

External waste heat (incinerator steam) was purchased, but according to the target management guideline (Appendix 14), the company producing heat (steam) and supplying heat (steam) to outside is not able to provide the indirect discharge coefficient of heat (steam) by itself, so that value is used.

## **C8.2e**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total Gross generation (MWh)** | **Generation that is consumed by the organization (MWh)** | **Gross generation from renewable sources (MWh)** | **Generation from renewable sources that is consumed by the organization (MWh)** |
| Electricity | 12974.74 | 0.74 | 12974 | 0.74 |
| Heat | 0 | 0 | 0 | 0 |
| Steam | 17953.96 | 0 | 17953.96 | 17953.96 |
| Cooling | 0 | 0 | 0 | 0 |

## **C8.2f**

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

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

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

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

Solar PV

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

0.74

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

0.46625

### **Comment**

Amount of electric power produced and consumed in a 500/50/10 KW photovoltaic power generation plant in a laboratory facility (kWh). Based on the self-generation of the photovoltaic power generation plant in 17 (self-consumed).

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

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

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

Other low-carbon technology, please specify (External waste heat (steam))

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

17953.96

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

0.2149

### **Comment**

HMC Ulsan plant purchased and used 17,953.96MWh of waste heat(stream). And we reduced 10,287tCO2 through the use of waste heat (steam) of the Ulsan plant.

## **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**

1.5747

### **Metric numerator**

tCO2e

### **Metric denominator**

Production: Vehicle

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

2602842

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

1652877

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

1.58

### **Please explain**

HMC's sales volume decreased in 2017 compared to 2016 due to the decrease in sales volume in China. In addition, by actively reducing greenhouse gas emissions at all sites, the amount of greenhouse gas emissions in 2017 was also reduced 65828 tCO2eq compared to the amount in 2016. In 2017, the unit decreased 1.58% (Metric figure in 2016 is 1.6)

## **C9. Additional metrics**

## **C9.1**

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

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

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

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Production

### **Technology**

Battery electric vehicle (BEV)

### **Metric figure**

71257

### **Metric unit**

Units

### **Explanation**

HMC has announced its development strategy on eco-friendly vehicles called “2020.22.2 Project” in 2014, which shall be based on Blue Drive technology. Aiming to build more than 22 product-lines for eco-friendly vehicles, and to attain the second best rank in the market by 2020. HMC produced total 71,257 electronic vehicles in 2017. ( KONA - 38137 units, Sonata - 15310 units, Ioniq - 17,810 units). we

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Production

### **Technology**

Fuel cell electric vehicle (FCEV)

### **Metric figure**

164

### **Metric unit**

Units

### **Explanation**

HMC has announced its development strategy on eco-friendly vehicles called “2020.22.2 Project” in 2014, which shall be based on Blue Drive technology. Aiming to build more than 22 product-lines for eco-friendly vehicles, and to attain the second best rank in the market by 2020. HMC produced 164 fuel cell electronic vehicles, NEXO, in 2017.

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

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

### **Activity**

Light Duty Vehicles (LDV)

### **Investment start date**

January 1 2017

### **Investment end date**

December 31 2017

### **Investment area**

R&D

### **Technology area**

Business models

### **Investment maturity**

Applied research and development

### **Investment figure**

443600000000

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

0-20%

### **Please explain**

HMC is pushing for the development of electric vehicles, hybrid electric vehicles and hydrogen fuel cell vehicles by improving high efficiency of internal combustion vehicles. In particular, it is developing in four ways, such as reducing CO2 through high efficiency of existing internal combustion vehicles, maximizing fuel efficiency for power generation and transmission powertrains, minimizing energy loss, and utilizing renewable energy. The company is currently developing a sport utility vehicle (SUV) electric vehicle with a driving distance of 320 kilometers or more for a single charge with a goal of releasing it in the first half of next year and plans to introduce electric vehicles with a mileage of 400 kilometers or more in 2020. It is also developing the FE hydrogen electric vehicle, which is the successor to the first commercial hydrogen electric vehicle, 'Tucson ix35,' with the goal of release on next February. In this regard, the company plans to significantly increase its investment in R&D and invest 31.6 trillion KRW in the mid- to long-term in order to actively respond to regulations on fuel efficiency and the supply of eco-friendly vehicles in each country. HMC invested 443.6 billion to improve fuel efficiency and develop eco-friendly vehicles in 2017

## **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**

Reasonable assurance

### **Attach the statement**

[2017 Czech Republic\_verification.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/MwFy6vuYQEGjYWW-E9OPwA/2017CzechRepublicverification.pdf)

[2017 US Verification report.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/wW2jlJf9WkebKGUYTMhSvA/2017USVerificationreport.pdf)

[2017 China Verification.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/mQopdK7DEkmFH2cFpkqJ1A/2017ChinaVerification.pdf)

[2017 Korea Verification\_scope 1 +2 (ENG)2.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/djOM4wdRf0-sxSdcdvc_Ng/2017KoreaVerificationscope12ENG2.pdf)

### **Page/ section reference**

1

### **Relevant standard**

ISO14064-3

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

85

### **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**

Reasonable assurance

### **Attach the statement**

[2017 Korea Verification\_scope 1 +2 (ENG)2.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/djOM4wdRf0-sxSdcdvc_Ng/2017KoreaVerificationscope12ENG2.pdf)

### **Page/ section reference**

1

### **Relevant standard**

ISO14064-3

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

70

## **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**

[HMC\_2018SR\_Eng\_TCG0814.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/z7YRyLOFo0iQnH1EtviZOQ/HMC2018SREngTCG0814.pdf)

### **Page/section reference**

115, 123, 126page

### **Relevant standard**

ISAE3000

## **C10.2**

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

Yes

## **C10.2a**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Disclosure module verification relates to** | **Data verified** | **Verification standard** | **Please explain** |
| C4. Targets and performance | Emissions reduction activities | ISO14064-3, ISAE3000 | The emission reduction activity and emission reduction are initiated through the Company's sustainability report which has been verified by a third party. |

## **C11. Carbon pricing**

## **C11.1**

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

Yes

## **C11.1a**

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

China national ETS

EU ETS

Korea ETS

## **C11.1b**

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

### **China national ETS**

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

15

### **Period start date**

January 1 2017

### **Period end date**

December 31 2017

### **Allowances allocated**

363017

### **Allowances purchased**

62251

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

300766

### **Details of ownership**

Facilities we own and operate

### **Comment**

### **EU ETS**

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

5

### **Period start date**

January 1 2017

### **Period end date**

December 31 2017

### **Allowances allocated**

45221

### **Allowances purchased**

0

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

40728

### **Details of ownership**

Facilities we own and operate

### **Comment**

### **Korea ETS**

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

59

### **Period start date**

January 1 2017

### **Period end date**

December 31 2017

### **Allowances allocated**

1661373

### **Allowances purchased**

0

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

1524496

### **Details of ownership**

Facilities we own and operate

### **Comment**

## **C11.1d**

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

HMC has been participating in the GHG emissions reduction policy by executing GHG Target Management Scheme from 2011 to 2014 and participating in Emissions Trading Scheme starting 2015. In the short run, the

company intensified energy reduction within operation site, enhanced GHG emissions reduction activity through removing and improving an efficiency of Loss. In mid-to-long term, HMC established effective countermeasures to GHG emissions reduction through applying new technologies such as CHP (Combined heat & power), solar energy and energy storage. In addition, through establishing “GHG response panel,” HMC is working on reducing

GHG emissions through planning and assessing GHG emissions in operation sites and analyzing GHG emissions from a financial point of view. As an organization comprised of individuals from all areas including operational

site, building, and production technology, the GHG response consultative body enhances energy inspection and promotion activities, improves process efficiency, and proposes for an implementation of new energy or energy

reduction technology. In addition, the company holds sessions presenting key issues in the Emissions Trading market so that suppliers have a better understanding of the Emissions Trading Scheme and can respond more

effectively.

## **C11.2**

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

No

## **C11.3**

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

Yes

## **C11.3a**

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

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

Drive energy efficiency

Drive low-carbon investment

Identify and seize low-carbon opportunities

### **GHG Scope**

Scope 1

Scope 2

### **Application**

HMC is making a lot of efforts to save energy by setting up eco-friendly plants as regulations on greenhouse gases at domestic and overseas. Internal carbon prices have been utilized since 2017 through phased review in 2016 to induce low-carbon investment in the mid- to long-term to reduce greenhouse gas emissions. In particular, Korea, Czech Republic, and Chinese business sites are interconnected with the emission trading system, monitoring the price of the emission trading to satisfy the quota, and they establish and apply internal carbon prices through internal decisions. The company is utilizing internal carbon pricing when reviewing investments to reduce greenhouse gas emission of business sites. Internal carbon pricing is reflected in reviewing investment of renewable energy and investment items to achieve mid- to long-term reduction targets, and the internal price corresponding to the reduction in comparison to investment cost is compared and is used when selecting the 1st item.

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

100000

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

HMC uses internal carbon price at prices above the domestic emissions market (average 22,000 KRW). The relevant price is judged that regulations on emissions price and carbon emissions in mid- to long-term and is determined through internal decision. Internal carbon prices are currently phased out in domestic, Indian, Chinese and Czech business sites and are applied at the same price. Through more systematic analyses in the future, the company plans to establish an internal carbon pricing decision mechanism by applying various factors (market, emission trading prices, investment willingness, time, etc.) reflected in the internal carbon pricing.

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

Shadow price

### **Impact & implication**

Hyundai Motor Company is considering various opportunities to reduce greenhouse gases through internal carbon pricing. First of all, it provided feasibility for purchase of promoting eco-friendly products (low-carbon energy product purchase), and the percentage of eco-friendly product purchase increased from 10.2% in 2015 to 17.8% in 2017. . In addition, the company is considering to increase the supply rate of renewable energy when purchasing power at the business site, and major investment decisions are to secure 15.7 percent of the energy supply rate when constructing a new HMC headquarter building. It is planning to introduce most of the renewable energy facilities (solar power generation facility, geothermal heat pump, fuel cell, energy storage) that can be applied to new office building and is constructing by using heat recovery system and high-efficiency energy equipment. The introduction of renewable energy facilities for the construction of new buildings increased short-term investment, but the result of review by using internal carbon pricing indicated and had final decision-making that the benefits of the introduction in the mid- to long-term are greater. Construction of the new building is expected to be completed in the next 2023.

## **C12. Engagement**

## **C12.1**

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

Yes, our suppliers

Yes, our customers

## **C12.1a**

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

### **Type of engagement**

Compliance & onboarding

### **Details of engagement**

Climate change is integrated into supplier evaluation processes

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

11.3

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

69.5

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

79.8

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

Suppliers' engagement activity HMC is meaning are designed to foster global competitiveness of suppliers, strengthen the foundation for sustainable growth and build a foundation for shared growth. To achieve the goals of these three activities, the company has strengthened the existing cooperation programs and steadily explored new systems and programs, thereby it is continuously expanding its activities to encourage suppliers to grow and establish a virtuous cycle in which it will return to the growth of HMC. HMC not only supports the development of the quality and technology competitiveness of its suppliers, but also helps to strengthen the foundation for its suppliers to grow into a stable and sustainable company. The target company of engagement is expanded its target range into tier 1 suppliers which have financial correlation with HMC. In particular, technology 5 star which has implemented since 2003 is R&D technical skills evaluation system of tier 1 suppliers with quality/payment 5 star, and it sets a goal of voluntary securement of technology competitiveness for the partners as diagnosis of R&D technical skills level and improvement of system. In 2017, the entire assessment sheet was revised for actual technical skills diagnosis of suppliers. The evaluation of R&D investment ratio was increased from 4.0 to 8.0 and the increase evaluation of R&D investment ratio was newly allocated. By doing so, suppliers encourage to develop eco-friendly car technologies and supports them develop Cleaner Production systems and technologies that meet changed environmental standards. In addition, to support the tier 2 and tier 3 suppliers, which are relatively smaller than the tier 1 suppliers, the Quality Technology Corps and support team of partners are organized to support free consulting for R&D of eco-friendly vehicles, production technologies(fuel efficiency, etc.) and quality. In 2017, the Quality Technology Corps conducted activities with 15 suppliers of tier 1, 92 suppliers of tier 2 and tier 3 , and the support group for Hyundai and Kia merged to support a total of 48 companies.

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

HMC has been supporting its suppliers\s with production technology as well as R&D for a long period of time, with the conviction that expanding their capabilities will increase the competitiveness of the local automobiles parts industry. If suppliers and HMC jointly advance to foreign countries, the company is expecting that the barriers for overseas expansion of its suppliers can be lowered significantly through business cooperation in the early stages of its advance. In particular, the side of reinforcement of eco-friendly vehicles(parts) technical skills and Cleaner Production can increase the competitiveness of the suppliers as well as response of climate change, and it can increase the competitiveness of Korea auto industry in advance. In 2017, the size of suppliers increased 3.4 times from 2001, and the number of joint overseas companies expanded to 772 companies. As a result, HMC was selected as the most valuable company for the fourth consecutive year in win-win index by the Joint Growth Commission in 2017. The win-win index is selected for the companies with a large ripple effect among top domestic companies under 'Article 20 of the Act on Promotion of Shared Cooperation between Large and Small Businesses' for 169 companies. The government provides incentives for the top honor company, and HMC is trying to strengthen the competitiveness of eco-friendly vehicles industry in the future as investing that incentives in supporting its partners again.

### **Comment**

Among the suppliers involved in the engagement activities, the ratio of emissions by company reflected in Scope 3 emissions reported by C6.5 was calculated emissions by eco-friendly vehicles' carbon labelling and reported that participating suppliers are reflected as suppliers of raw material.

### **Type of engagement**

Engagement & incentivization (changing supplier behavior)

### **Details of engagement**

Run an engagement campaign to educate suppliers about climate change

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

40.5

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

15

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

79.8

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

Hyundai Motor believes that the growth of parts suppliers is a source of competitiveness for finished vehicles and is giving full support to its suppliers to secure competitiveness. In 2017, it provided 50 billion KRW to some 5,000 component companies to establish a win-win cooperation system with their tier 2 and tier 3 suppliers. As part of its industrial innovation movement, it has been supporting small companies to convert their processes into smart factories since 2015. Defects in components and problems in products are prevented beforehand by applying ICT to production system and implementing systematic system, and the effects, such as computerization of process, reduction of disuse cost, increase of deadline compliance rate, safety, improvement of climate change(environment) of suppliers are represented through consulting and facility investment. HMC's Ulsan plant and Asan plant were selected as the energy champions, which were established in 2017 to encourage companies to improve energy efficiency among energy-consuming businesses. The chosen company achieved 3 percent energy saving last year among multi-consumption companies that use 40 percent of the total energy use in the industrial and power sector. The company shares its energy-saving expertise with the suppliers and spreads the expertise to small businesses through energy technology exchange meetings in order to spread energy saving efforts throughout the industry. Based on this, HMC is successfully seeking ways to contribute to resolve environmental issues and grow with small and companies.

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

HMC has been working together to reduce energy costs of general industry and reduce greenhouse gases through energy saving technology guidance to small business by participating in a policy of large-medium-small shared green growth. As a result, a total of 344 companies have supported smart manufacturing so far, and their productivity, quality, cost, delivery, safety, environment and business KPI improvement rates have increased by an average of 45.4%. The company supports the conversion of the process of 650 small businesses into smart factories by 2019.

### **Comment**

Among the suppliers involved in the engagement activities, the ratio of emissions by company reflected in Scope 3 emissions reported by C6.5 was calculated emissions by eco-friendly vehicles' carbon labelling and reported that participating suppliers are reflected as suppliers of raw material.

## **C12.1b**

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

### **Type of engagement**

Education/information sharing

### **Details of engagement**

Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

### **Size of engagement**

100

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

79.8

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

Hyundai Motor Company is not only developing and introducing relevant products into the market to maximize the eco-friendly of its vehicles, but also ensuring that its customers take eco-friendly as an important competitive advantage for the vehicles and selecting eco-friendly vehicles as purchasing alternative prior to other models, thereby the company knows its importance of reducing the psychological barrier for uncommon product, 'eco-friendly vehicles.' Therefore, the company organized the project of hydrogen electric house to provide an opportunity to experience intuitively for the benefits of eco-friendly energy and eco-friendly car products so that customers can consider more conveniently purchasing eco-friendly products, such as hydrogen electric cars and electric cars. The target of engagement considered not only customers of HMC but also adults and family visitors so that many general customers could more easily consider purchasing eco-friendly vehicles. It introduced hydrogen electric house in the Hangang Park in Yeouido, reflecting its ease of location for the sake of engagement target and allowed visitors to experience AR, Zero Emission, and hydrogen principle vehicles.

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

In line with the introduction of next-generation hydrogen electric vehicles, the company was first shown the promotion space, 'hydrogen electric house,' in Hangang park, Yeouido, Seoul to introduce the convenience and eco-friendly of hydro electric, and principle of operation and safely of hydrogen electric vehicles actively and to raise interest to customers. Visitors who visited hydrogen electricity house were able to experience how hydrogen energy was eco-friendly by using Augmented Reality(AR) equipment and were able to easily see the principles of operation for hydrogen electric vehicles visually. In 'Zero EMISSION Vehicle Experience,' AR equipment was used to let people experience not only the benefits of hydrogen electric vehicles which are producing clean water and electricity, but also air cleaning function that absorbs and filters fine dust. Thanks to the high interest and response from visitors about the hydrogen electricity house which was held on from August to November 2017, hydrogen electric house has been expanding the nationwide including Ulsan in 2018. Hyundai Motor Company actively promoted the safety of eco-friendly for eco-friendly vehicles and provided the information about it, thereby the overall sales of eco-friendly vehicles highly increased in 2017. It increased by about 10% compared to 2016 (225 units sold in 2016, 250 units sold in 2017).

### **Type of engagement**

Collaboration & innovation

### **Details of engagement**

Run a campaign to encourage innovation to reduce climate change impacts

### **Size of engagement**

100

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

100

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

As a priority strategy, HMC is pushing forward by establishing six MOVE strategies at a CSV. As one of the six strategies, GREEN MOVE (response to environmental conservation and climate change) selects a priority strategy for regional climate change environmental issues (desertification, flooding, air pollution, etc.). As the company operates businesses that are closely related to environmental issues such as climate change, energy, and air pollution, it feels the need to protect the environment and restore the destroyed nature. To achieve meaningful results in the restoration of forests devastated by human greed from starting with small efforts, the company has progressed construction of forest in metropolitan area and Hyundai green zone project. The second project of ' Hyundai Green Zone ', which is under way in 'Baoshaodai Lake in Zheng Lan Qi ', inner Mongolia, China, is an ecological restoration project that will create 40 million km2 of grassland by 2018, and this project is the prevention of large-scale desertification that is links to grassland project of 50 million km2 started on last 2008 in 'Chakanor', inner Mongolia. In 2016, the company launched an environmental campaign called 'IONIQ Longest Run' along with the IONIQ to improve awareness of eco-friendly vehicles. This is a social contribution activity in which participants can make donations by using the IONIQ running application.

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

HMC is reminded of the importance of the environment and the need to respond to climate change and is considered it a success. The company aims to set the stage for communicating to make the item of climate change as an issue, to perceive the need to respond to climate change and to pursue the changes in perception for eco-friendly vehicles by customers. Through this, each press is judging communication with consumers in response to environment and climate change through news-gathering and broadcasting by success. Hyundai Motor Company signed an 'Agreement for Forest Construction in Metropolitan Landfill' with the Metropolitan Landfill Management Corporation (SL Corporation) in September 2016 to create a forest to prevent fine dust. Based on the donation made by the IONIQ longest runners, the company has started creating "Dream Park - IONIQ Forest." Based on 191,000 km that 14,000 IONIQ Longest runners ran in December 2016, the Dream Park-IONIQ Forest 1 has been created and has been planted 8,450 trees. In the future, 30,000 trees will be planted by 2021, thereby it will transform landfills into forests and return to citizens through this business. When the IONIQ forest is created, it will also serve as an oxygen tank that will provide fresh air throughout the metropolitan area. The company will also be grown as a corporate citizen who will communicate with customers through forest and actively participate in environmental issues as producing video clips for promoting the IONIQ forest and developing an app to check the condition of tree and forest by mobile phone applications and the internet.

## **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

## **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 (2020 EU vehicle CO2 emissions regulation) | Support | HMC monitored CO2 emissions regulations on vehicles through European Technology Institute and local branches and presented various opinions to the European Union. Also, through establishing the fuel efficiency monitoring system, HMC established response system in response to compliance issues. In order to improve fuel efficiency and exhaustion technology, HMC has formed the active partnership with key global parts manufacturers and pushed forward for the establishment of stronger R&D process | HMC advocated a more generous Super Credit policy, a delay to establish the post 2025 CO2 emissions regulations as well as the introduction of a new emissions testing cycle. To respond to regulations on emissions, the company has strengthened Super Credit system and suggested solutions, such as 'extension of the time frame for regulations on CO2 emissions after 25 years and delay of the period of introduction of new emission measurement test cycles. |
| Cap and trade | Support | With the launch of GHG Emission Trading Scheme, HMC attended public hearings, meetings, and consultative groups and presented opinions as a company subject to the GHG Emission Trading Scheme. In addition, HMC participated as a legislative advisor for the trading scheme. | HMC is supporting the regulations of the government partially through analysis of potential reductions for setting reduction target for the nation's Post 2020 and suggestion of experts from the industry. |

## **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?**

For HMC, planning and strategy office under CEO is in charge of a role and is in charge of all-inclusive business of climate change response. All issues related to climate change are identified through the planning and strategy office, and the enterprise-wide risk management team in the planning and strategy office reviews the internal and external risk factors related to sustainability and reports to the board of directors if needed in the case of issues which have critical effects into management activities as putting together the major risk items by business sites. For the direct engagement activities with external organizations and industry association, the company sets the objects to establish measures to minimize financial losses, negative corporate image and create new business opportunities-related. If the response-related is needed, the company responds to establish the enterprise-wide response strategies.

## **C12.4**

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

### **Publication**

In mainstream reports

### **Status**

Complete

### **Attach the document**

[HMC Annual report 2018.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/BZVpJiu8HUSeYUMluUNfGg/HMCAnnualreport2018.pdf)

### **Content elements**

Strategy

Emissions figures

Emission targets

Other metrics

Other, please specify (Low-carbon Product Certification Status)

### **Publication**

In voluntary sustainability report

### **Status**

Complete

### **Attach the document**

[HMC\_2018SR\_Eng\_TCG0814.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/z7YRyLOFo0iQnH1EtviZOQ/HMC2018SREngTCG0814.pdf)

### **Content elements**

Governance

Emissions figures

Emission targets

Other metrics

## **C14. Signoff**

## **C-FI**

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

## **C14.1**

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

|  |  |  |
| --- | --- | --- |
|  | **Job title** | **Corresponding job category** |
| Row 1 | President | Chief Executive Officer (CEO) |