# **Hyundai Motor Co - Climate Change 2019**

## **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 since 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. We 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 also additionally released KONA EV(SUV) and NEXO(FCEV) in 2018. In recognition of such technological prowess and excellence in design, hybrid and electric vehicles achieved result that it 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(Tucson) and put efforts for enhancement of system and popularization, thus result in release to the world market and society through hydrogen electric vehicle private-model, NEXO, in 2018. 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. HMC has constantly challenged to make car able to be life companion, not just transportation and to make many people able to enjoy comfortable and happy life through the car. For the future, Hyundai Motor Company will communicate and cooperate with all the stakeholders concerned with creative and defiant stand. In 2018, HMC decided to transform itself into a smart mobility solutions provider and, as a game changer in future mobility market, has continued to create innovation for urban living and quality of life, no longer remaining in automobile manufacturer.

## **C0.2**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Start date** | **End date** | **Indicate if you are providing emissions data for past reporting years** | **Select the number of past reporting years you will be providing emissions data for** |
| Row 1 | January 1 2018 | December 31 2018 | No | <Not Applicable> |

## **C0.3**

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

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) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

|  |  |
| --- | --- |
| **Position of individual(s)** | **Please explain** |
| Board-level committee | 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 is decreasing. As climate change affects business strategy, planning, investment and lineup of HMC, the Board of Directors 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 Company, 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.. Under leadership of the Vice Chairman, R&D director / Sales director / Finance and Accounting director / Business Strategy Planning director have attended PM Reporting Committee and Product Committee and following committees 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) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.**

|  |  |  |
| --- | --- | --- |
| **Name of the position(s) and/or committee(s)** | **Responsibility** | **Frequency of reporting to the board on climate-related issues** |
| 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 (do not include the names of individuals).**

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:

Business Strategy Planning Division 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. Business Strategy Planning Division 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, Sales director, head of Finance and Accounting, and head of Business Strategy Planning. 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 (do not include the names of individuals).**

### **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 | 1 | 3 | 2018-2020 |
| Medium-term | 3 | 13 | 2020-2030 |
| Long-term | 13 | 35 | 2030-2050 |

## **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 climate-related risk issues. With our environmental regulations/legal communication systems, we upload and share environmental issues and regulatory information promptly. we also organize monthly meeting for the product committee and PM Reporting Committee to maximize opportunities and prevent company-wide risks such as efficiency and CO2 regulations for vehicles and manages an international fuel efficiency monitoring system to continuously see the current status of the compliance. Also, we share GHGs emission data on a quarterly basis and respond to critical issues through GHG Council for climate change at its own business sites. We have established a greenhouse gas reduction account in our investment budget since 2010 and 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 operated task force for enterprise risk management in Business Strategy Planning Division to promptly respond to global climate-related risks. We have strengthen the risk management by proactively responding to internal and external business environment, and implemented an enterprise-wide integrated risk system to utilize them as an opportunity factor for competitive advantage and strategic response. Through our risk management to identify main causes and effects of the risks, we are able to prevent them. Furthermore, not only minimizing negative impacts of the climate-related risks, but HMC is also utilize them as business opportunities. HMC has implemented 'Environment Regulation Management System' for integrated regional environmental regulations and proactive compliance risk. Our legal team and Business Strategy Planning Division analyze regional policies/regulations related to climate change, also conducts monthly monitoring transitional and physical risks and opportunities under the short-and long-term(by 2050). For the issues identified as urgent and crucial to our businesses, Product Committee and PM Committee directly manage the risks and establish mid- and long-term strategies to deal with them. At individual asset level, Council for GHG response is organized more often than the quarterly basis, 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:

We analyze regulation trends in automotive industry and other competitors’ cases to assess climate-related risks. Our climate change managers share the risks through the GHG consultative group if an enterprise-wide actions are necessary. As a result of risk assessment, each risks have financial impacts and the bigger the impacts, the more potential size are estimated. Financial impacts include not only actual losses but also possible future losses caused from plant operations to be suspended or decreased revenues. 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 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:

Regarding business relevance and social Impact, HMC prioritized 31 crucial sustainability issues including the climate change. The 31 issues are categorized into three levels: Top 10% issues as ‘Material Issues’; next 70% issues as ‘Relevant Issues’ and the rest of issues as 'Emerging Issues.‘ When assessing priorities, first, we review related regulations, management policies, international sustainability index, media research, and industry reports. Also, major issues comes from internal issue analysis procedures considered risks management, business impact, and strategic association aspects. Priority of review approval considers preferentially over potential for identified risks, the possibility for opportunity transition, and the impact of business where investment or improvement is needed. Each risk is divided into short-/mid-/long-term, and then mitigation plan is developed and implemented for each risk. With reviewing financial evaluation such as period of return on investment, HMC is aims to take response that optimized with opportunity and risk and efficient. climate change is drawn as top material risk every year, and so on strategy and investment is progressing to cope with it. In 2018, “Producing Eco-friendly Vehicles” is derived as highest in material analysis process.

4. Definition of significant financial impact:

We define major financial impacts such as suspension of our plant operations and decreased sales caused by climate-related risks. Although actual net loss due to plant shutdown, blackout and weather events may be negligible, it affects the finished product line in steps and global production line, thus it would occur huge loss as a result. Regulations that are directly related to product sales, such as emission standards, can be directly linked to HMC's maintenance, thereby they are classified to critical financial risks. Response strategy is established at every level such to hedge risk as constant improvement in fuel efficiency, reduction in pollutant, development of eco-friendly vehicles.

## **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 2nd plan period (2018-2020) after participation in 1st plan period (2015-2017) and were informed of allocation of 1,464,000 tons each year during the plan period. 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 2018 from the Environment Ministry is 1,464,000tCO2e, and the company's financial impact is calculated at 332,210,880 won(KRW) if the amount is not reached at least 1%. (calculated at 22,692 won(KRW) per ton(KAU) as average of 2018.) HMC classifies carbon emission as intangible asset, as above, if emission exceeds the quota, measures the penalty imposed in response to the amount of excess as “Emission Debt". The company is continuously evaluating the risk for compliance and emission trend regarding current regulations (target management system and emission trading system) because of the financial risks, such as increased operating costs, increased manufacturing costs, increased selling prices and increased debt, 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 in 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 as of 2018, 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 new climate change regulations trend as essential items for assessing risks as they are closely related to our product regulations. |
| Technology | Relevant, always included | A global policy for vehicles’ fuel efficiency is under way to address climate change issues. United States, Japan, China and European countries have already launched regulations on fuel use to alleviate air pollution in the metropolitan areas' transport sector, while promoting distribution of electric cars. To expand the supply of electric vehicles, the German government announced a plan to provide 1 billion euros in funding for purchasing subsidies and charging infrastructure for electric vehicles in 2016, and Poland also announced the plans to supply 1 million electric vehicles by 2026. China has been implementing various measures to support the new energy vehicle industry, and become the largest EV market since 2015. It also recorded 1.03 million units in sales in 2018 alone. China is also actively supporting the supply of hydrogen and electric vehicles at the national level, including the establishment of a goal of supplying 1 million hydrogen and electric vehicles by 2030. Japan announced its goal of supplying 800,000 units by 2030 as well, and the global hydrogen and electric car market is expected to grow explosively in the future. With those global polices regulating emission in transport sector, if HMC is not actively engaging in developing green car technology, we will expect financial losses from not having market opportunities. We have developed various technology such as fuel efficiency, air pollution reduction technology, hydrogen electric car and these technologies are essential items in risk assessment process. 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. 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 also additionally released KONA EV(SUV) and NEXO(FCEV) in 2018. Its U.S. market share was 3.9 percent in the same year and fuel efficiency of hybrid and electric vehicles ranked first in the U.S. market. Even in the conservative European market, it has 3.4 percent market share with strengthening its position in recognition of 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. The automobile industry lawsuits resulted from climate change are periodically monitored and the overall impact derived from legality such as legality issues, penalty, and reputation is reflected as risk assessment factors. 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 expected global sales of electric vehicles will reach 23 million to 43 million units in 2030 and it is four to eight times global sales (5,100,000 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. It reflects the price volatility of raw material in the risk assessment process. 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 climate-related disclosures by our stakeholders for investing, which directly affects the company's reputation. 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. The National Pension Service, Korea’s representative institutions that are making social responsibility investments, is a shareholder who owns 8.19 % of HMC shares as of 2018, and there is a risk of falling stock prices due to decreased investment if the company does not properly respond to climate-related management items. With the introduction of Stewardship Code of National Pension, growth of Social Responsibility Investment (SRI) funds and strengthening of corporate non-financial value evaluation, the demand for companies to disclose policies on climate-related policies and activities increased. More specifically, if we fail to properly respond to non-financial measures, it may have a risk of losing the investors as much as 8.19% of stock owned by the National Pension. (approximately 2,027,438,883,789 KRW, number of shares hold by National Pension : 17,493,796 / HMC’s stock price: 115,895 KRW (price of common stock as of December 2018)) HMC is the representative automobile company in Korea so it recognizes that if it does not proactively respond to climate change, it affects reputation. Thereby, it reflects media issues and recognition in the risk assessment process in terms of social responsibility and climate change. All the while in the automobile industry, existing internal-combustion engines could be response to climate change and diesel based automobiles were regarded as the existence which can reduce the emission of greenhouse gases, but it recognized that, actually, 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. |
| 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 snow storage and water storage when building new facilities to our laboratory. The new building in Samsung-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 because of poor water quality, sales may decrease caused by 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). We reflect Basin Risk and Operation Risk as long-term physical elements in risk assessment process. As a result, we build Zero Liquid Discharge in Asan plant that classified as high when risk assessment was conducted. In order to secure enough amount of water usage and 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. As a result of water risk assessment in 2018, six plants were derived as high risk. The company is integrally reviewing the establishment of Zero Liquid Discharge of corresponding workplaces in steps. |
| Upstream | Not relevant, explanation provided | HMC reflects High risk element that directly affect the business in risk assessment process. As risk on increased greenhouse gas emissions and energy consumption by raw material suppliers is identified at the Moderate level, it is not considered in the risk assessment process. 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 | Hyundai Glovis accounts for more than 70 percent of the company's logistics, and the company is the leading logistics company in Korea, actively supporting the low-carbon activities of Hyundai Glovis, including modal shift. Although the downstream part is not considered in the climate change risk assessment process, HCM continuously holds the meetings and consultations with the person in charge of climate change from Hyundai Glovis. 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. The consultative group is composed by Business Strategy Planning Division, quality, domestic sales, marketing, R&D and major managerial department. 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

HMC’s Business Strategy Planning Division identified 54 climate-related risks and prioritized into 10 issues through secondary screening process. Materiality of risks are evaluation upon their impact size, expected occurrence (2018-2050), and probability of control. Thus, the matrix for assessing climate-related risks opportunities is consist of (1) the impact of the risk/opportunity on our business as an X-axis, and (2) the probability of occurrence of the risk/opportunity as an Y-axis. 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 is assessed based on 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 is 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. As a result of identifying climate-related risk and opportunities 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

As worldwide emission standard and related regulations are strengthen, emerging regulations were assessed as “high risks”. Also, countermeasures and strategies have been developed to cope with growing regulatory crisis for refrigerant tires and fuel regulations, such as the emerging 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 transition opportunity due to strengthen regulations on GHG were also highly measured. An awareness and demand for eco-friendly cars have increased due to enhanced regulations on GHG. We could increase its sales as coping with product efficiency regulations and launching vehicles through expanding R&D activities and investments

4) Physical Risks and Opportunities Cases

With the rising occurrence of physical risks including abnormal temperature and tropical cyclone, management of the risks was selected as the top priority issue. The cases of the risk includes the tornadoes at HMC’s US business site, heavy snowfall, rainfall, drought, and yellow dust in China and Korea, the temperature rise in Czech business site, and tsunami in India business site. More specifically, at HMC’s three domestic sites, the power consumption was increased rapidly due to heat wave and also the typhoon Soulik hindered operations in 2018 summer. struck the Korean Peninsula. Moreover, the patterns and intensity of these climate events become more powerful on our business sites, so we are 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 Business Strategy Planning Division and promptly reported to the CEO to establish a risk management system. Also, we decided to increase renewable energy to 15.7 percent in our new office building under construction. Once the new building is completed, it will be expected to have positive impact on building reputation by increasing a enterprise-wide 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**

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 2nd plan period (2018-2020) by submitting an application for allocation in 2017 after 1st plan period (2015-2017). 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 increased selling prices rises to achieve the goals of strengthened GHG reduction than the target management system.

### **Time horizon**

Current

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

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

Yes, a single figure estimate

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

996615000

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

<Not Applicable>

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

<Not Applicable>

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

The implementation of the emission trading system involves financial risk of the purchasing cost 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 2018 to 2020 by the Ministry of Environment is 1,464,000tCO2e each year, assuming that this is not achieved by even one percent, the company's financial impact will be calculated at maximum 996,615,000 won(KRW). (Calculated 22,692 won(KRW) per ton(KAU), based on average price in 2018).

### **Management method**

HMC responds to the emission trading scheme by implementing emission reduction activities in product development and sites operations. In short-term, we aim to increase fuel efficiency of conventional vehicles with internal combustion engines and expand eco-friendly ones in our product portfolios. Through the whole stage of product design, we always consider recycling and zero emission of GHG and other harmful substances from our product. As a result, we were granted international environmental certifications in the auto industry. HMC has strictly managed GHG emissions from all worksites and buildings considering the scheme. We use our own system, the Global Energy & GHG Management System (GEMS) which monitors real-time energy consumption from our global worksites . We also share outstanding energy-efficient technologies contributing to reducing energy costs. Besides manufacturing plants, we are also making aggressive efforts to save energy consumed in buildings such as our research institute and sales office. To share climate-related key issues, HMC holds an open session to help our suppliers respond to the scheme promptly. In the session, we talk about difficulties and solutions to managing GHG emissions. Since HMC is regulated by the emission trading scheme, we are conducting various emission reduction activities. In 2018, we spent 27,764,000,000 won(KRW) in carrying out emission reduction projects related to improving energy efficiency.

### **Cost of management**

27764000000

### **Comment**

### **Identifier**

Risk 2

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

Direct operations

### **Risk type**

Transition risk

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

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

### **Type of financial impact**

Reduced demand for products and services

### **Company- specific description**

As the inevitable 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. Recently, the standard of automobile emissions and fuel efficiency by country has been elevated, and Korea should meet the standards of 97.0g/km and 24.3km/l for greenhouse gas emissions and fuel efficiency by 2020, respectively. 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 percent 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

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

Yes, a single figure estimate

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

17173000000000

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

<Not Applicable>

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

<Not Applicable>

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

The potential financial impact due to the ban on fossil fuel cars in Europe is estimated as the same amount of HMC's sales revenue in Europe. So, based on HMC's sales revenue in Europe in 2018, the expected loss is 17,173 billion won(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. In the case of the company, it has invested 2,767 billion won(KRW) to improve fuel efficiency and develop eco-friendly vehicles in 2018 and will increase the investment to 4,699.6 billion won by 2022.

### **Cost of management**

2767000000000

### **Comment**

### **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**

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. Technology to improve fuel efficiency through high efficiency of internal-combustion engine vehicles is under development. In order to reduce CO2 and improve fuel efficiency, we are developing fuel efficiency technology focusing on three directions: maximizing fuel efficiency for powertrains that generate and deliver power, minimizing energy loss, and utilizing renewable energy. Although investment costs have risen, we have been actively developed technology as risk factors such as penalties and prohibition of sales are greater than investment costs.

### **Time horizon**

Short-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

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

Yes, a single figure estimate

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

17173000000000

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

<Not Applicable>

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

<Not Applicable>

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

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 since 2021, 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 17,173 billion won(KRW).

### **Management method**

HMC has developed eco-friendly vehicles(EV, HEV, FCEV) as well as improving the efficiency of conventional ones with internal-combustion engines. The fuel efficiency technology is improved in three ways: 1) maximizing fuel efficiency of powertrains, 2) minimizing energy loss, and 3) utilizing renewable energy. We set a mid- to long-term goal up to 2020 and along with the goal, the investment in eco-friendly vehicles will increase significantly. And in 2018, we launched NEXO(FCEV), a next-generation hydrogen electric vehicle based on fuel cells and KONA HEV/PHEV/EV driving more than 320 km with a single charging. We are currently developing Porter EV, an electric truck driving more than 400 kilometers with a single charging. To promote the successful distribution of electric vehicles, HMC has also been concentrated on establishing charging infrastructure. Through those activities, HMC actively responds to global regulations on fuel efficiency and eco-friendly transportations. In the case of the company, it invested 312.2 billion won(KRW) to improve fuel efficiency and develop eco-friendly vehicles in 2018, and it will increase the investment 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 mid- and long-term, and we will implement effective management of global fuel efficiency regulations by executing a 13.3 trillion won budget for eco-friendly vehicles and smart cars.

### **Cost of management**

312200000000

### **Comment**

### **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**

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. In addition to rare earths, iron ore, aluminum, copper and plastic, which are the main raw materials in the vehicle, have risen for the past three years. The price of copper, for example, increased about 34% in 2018 compared to 2016. (4,863USD/ton as of 2016, 6,525USD/ton as of 2018). If there is a problem in making core parts 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. Therefore, the rise in price of raw material required for the production of eco-friendly vehicles affects the financial and production plans directly to our company, which is a big risk.

### **Time horizon**

Short-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

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

Yes, a single figure estimate

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

400000000000

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

<Not Applicable>

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

<Not Applicable>

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

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 unit 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 312.2 billion won (KRW) to develop eco-friendly vehicles in 2018. In 2019, it plans to invest 788.6 billion won (KRW) in core strategic areas such as autonomous driving/automation/electronic technology(connectivity)/future new technology as well as eco-friendly cars. In the mid- to long-term, the company will increase its investment amount to 4,699.6 billion won by 2020.

### **Cost of management**

312200000000

### **Comment**

### **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**

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-financial information as well as financial information. With the recent growth of social responsibility investment(SRI), HMC is required for 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, which affects sustainability of the company. The National Pension Service, one of the representative institutions that are making social responsibility investments, is a shareholder who owns 8.19% of HMC shares as of 2018 business report, and there is a risk of a fall in the market value of share prices due to reduced investment by investors if the company does not respond to non-financial management items such as climate change and greenhouse gas reduction. In particular, the importance of ESG is expected to strengthen the importance of ESG due to introduction of the Stewardship Code by NPS in 2018.

### **Time horizon**

Short-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

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

Yes, a single figure estimate

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

2027438883789

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

<Not Applicable>

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

<Not Applicable>

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

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 transparent disclosure of climate change policies to stakeholders including clients and investors or fails to actively respond, the company is at risk of losing credibility on investment 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 8.19% (2,027,438,883,789 KRW, number of shares held by NPC: 17,493,796 / Hyundai’s stock price 115,895 KRW as average stock price of December 2018).

### **Management method**

All the while, the automobile industry has recently raised a question on diesel-engined vehicles' little contribution to reducing GHG emissions. HMC also has recognized the limits of diesel cars in a climate-related perspective and tried to innovatively change its product portfolio to green vehicles. HMC has newly established a product portfolio that will operate eco-friendly vehicles to 44 types by 2025 and set a target of sales revenue up to 1.67 million units per year, 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 approximately 330 million won (KRW) on publishing sustainability reports, coping with DJSI and participating in CDP.

### **Cost of management**

330000000

### **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**

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

### **Company- specific description**

The supply of water needed in the manufacturing process may be difficult due to drought induced by change of average rainfall. Deterioration in water quality may affect the quality of the product as well. 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. As a result of water risk assessment for global business sites in 2018, six of the 17 global workplaces, including Asan in Korea four in China and six in India, showed high water risk due to extreme changes in weather patterns such as precipitation.

### **Time horizon**

Long-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

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

Yes, a single figure estimate

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

968120000000

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

<Not Applicable>

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

<Not Applicable>

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

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 968.1 billion assuming that it is about 1 percent of the total sales. (Estimated sales of consolidated financial statements 2018 as of 96.8120 trillion KRW)

### **Management method**

HMC has established and operated task force of enterprise risk management in its Business Strategy Planning Division since 2014 to effectively respond to various internal and external risks, including the growing climate change factors. It has organized the company 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. We also evaluate Water Risk by designating some of our domestic workplaces as representatives. In case of high water risk business sites, we are taking measures to secure steady supply of water such as zero discharge system(ZLD) and wastewater reuse facilities. The company spent 11.463 billion KRW (11,463,000,000 won) to reduce the investment for the reduction of greenhouse gases in 2018.

### **Cost of management**

11463000000

### **Comment**

## **C2.4**

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

Yes

## **C2.4a**

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

### **Identifier**

Opp1

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

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**

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. Starting with releasing IONIQ in 2016, eco-friendly vehicles, KONA EV/PHEV/HEV and NEXO, have been continuously launched since 2018. These models also demonstrated their superb technical prowess with recording global sales of 54,116 units in 2018. It is forecasted to raise the number of sales as a result of gaining its competitive edge for fuel efficiency in comparison to its rivals by improving fuel efficiency of all models to meet the average fuel efficiency regulation of companies.

### **Time horizon**

Current

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

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

Yes, a single figure estimate

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

4300000000

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

<Not Applicable>

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

<Not Applicable>

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

The market value of green vehicles is expected to reach approximately 21.5 billion KRW (185 billion USD) in 2025 and is predicted to attain high growth corresponding 30% of total automobile sales. (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 21.5 billion KRW\*0.2= approximately 4.3 billion 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 with building more than 22 line-up of eco-friendly cars by 2020, and the goal recently announced is that it expands the plans to establish line-up of 44 environmentally friendly cars by 2025. We completely established full-line up of 3 styles of IONIQ model in 2016 and 2017, and also launched KONA EV, electric SUV in 2018. We also had a grown sales unit for our eco-friendly cars(HEV, PHEV, BEV, FCEV) about 91,037 units. HMC plans to expand its dominance in the environmentally-friendly vehicle market by enlarging new line-up of EV and FCEV. Also, HMC expands its global cooperation to realize the hydrogen society. In June 2018, in order to secure the initiative in the hydrogen and electric vehicle market, we agreed to share the patents and major parts of hydrogen and electric vehicles with Audi, Volkswagen Group of Germany and expand technology collaboration in the future. In 2018, HMC invested 2,767 billion KRW to improve fuel efficiency and develop green vehicles, and HMC plans to increase the investment amount to 4,699.6 billion KRW by 2022. Specifically, looking at the amount invested in 2018, HMC invested 312.2 billion KRW in product development of green cars, increased by 64% from the previous year(domestic).

### **Cost to realize opportunity**

2767000000000

### **Comment**

### **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**

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 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. 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. For vehicles which are sold in Korea, all diesel vehicles have been made to meet Euro-6 standards same as Europe since September 2015. Since September 2017, new certified vehicles have conducted Real Driving Emissions (RDE), testing emissions over on-road conditions, so we are developing an emission reduction system for it. Gasoline/LPG vehicles are developed to satisfy LEV-III criteria same as U.S. that have been certified since 2016. (optional)

### **Time horizon**

Current

### **Likelihood**

Virtually certain

### **Magnitude of impact**

Medium-high

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

Yes, a single figure estimate

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

2200000000000

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

<Not Applicable>

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

<Not Applicable>

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

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 market share of Europe, U.S. and China in 2021 is 5 percent, Hyundai Motor's global sales are estimated at 40 billion USD \* 0.05 billion won = 2 billion USD. (1USD =1,100KRW, 2,200,000,000,000 KWR)

### **Strategy to realize opportunity**

Compliance with local regulations regarding emission standards is most important in HMC’s doing business. For example, all the HMC's passenger cars sold in Europe have met Euro-6 emissions standards from 2015. Euro-6 is much stricter than Euro-5 as focusing on hazardous materials (carbon monoxide, nitrogen oxides, hydrocarbons), particulate matter(PM), particle count (PN), and nitrogen oxides(to be reduced more than 55% of Euro-5) in diesel vehicles. Also, since 2017, our newly certified vehicles have been tested for the emissions of nitrogen oxides and particles (PN) on the actual road(RED). The automobiles for North America market, have been designed to meet the emissions Tier-3, LEV-III standard since 2015. Compared to Tier-2, LEV-III requires to reduce more smog and related hydrocarbons and oxides by 80%, and PM by 70%. Thus, HMC has thoroughly tested vehicles during test-drives in the lab, focusing on actual gas emissions over on-road emission. To comply with all these regulations, we have now developed an emission reduction system. HMC will be able to reduce unnecessary penalty costs by minimizing these risks by enhancing 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 133.2 billion to parts suppliers in 2018 to improve fuel efficiency, develop green vehicles, and invest in environmental technology/facilities.

### **Cost to realize opportunity**

133200000000

### **Comment**

### **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**

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

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

Yes, a single figure estimate

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

7500000000000

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

<Not Applicable>

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

<Not Applicable>

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

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 2018 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).

### **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 with building more than 22 line-up of eco-friendly cars by 2020, and the goal recently announced is that it expands the plans to establish line-up of 44 environmentally friendly cars by 2025. We completely established full-line up of 3 styles of IONIQ model in 2016 and 2017. The company recorded a good performance, (합계 안 맞음) HMC plans to secure and publicize its dominance in the environmentally-friendly vehicle market by enlarging new line-up of EV and FCEV. In addition, HMC expands its global cooperation to realize the hydrogen society. In June 2018, in order to secure the initiative in the hydrogen and electric vehicle market, we agreed to share the patents and major parts of hydrogen and electric vehicles with Audi, Volkswagen Group of Germany and expand technology collaboration in the future. In case of the company, it invested 2,767 billion KRW to improve fuel efficiency and develop eco-friendly vehicles in 2018.

### **Cost to realize opportunity**

2767000000000

### **Comment**

### **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**

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. The market for green cars is growing drastically in Korea as well. In 2018, market share of green cars including hybrid, electric and hydrogen vehicles is 8.2%, which is higher than western Europe(6.6%) and U.S.(3.9%). The Korean government set a target for supplying 1 million green cars and achieving the proportion of green cars to 15% by the year 2020. We expect the continuous growth of domestic green cars in the future, and accordingly future market opportunities of the Company, which accounts for about 60% of the domestic eco-friendly car market as of 2018, are expected to increase.

### **Time horizon**

Medium-term

### **Likelihood**

Likely

### **Magnitude of impact**

Medium-high

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

Yes, a single figure estimate

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

30800000000

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

<Not Applicable>

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

<Not Applicable>

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

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 596.3 billion KRW, 200,006,274 liters of gasoline, 100,007,516 liters of diesel). Combined, a total of 616.7 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 (5%, as targeted for 2021) → value creation of approximately 30.8 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 competitiveness in the green car market and brand value. We will increase the investment in securing fundamental technology of core parts including development of vehicles and powertrains to 4,699.6 billion KRW from 2018 to 2022.

### **Cost to realize opportunity**

4699600000000

### **Comment**

## **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. The 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 transitioning 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 (46 types) in 2018, seventeen types of eco-friendly vehicles account for about 40 percent of the total number of cars, and the company plans to continuously increase the eco-friendly vehicles line focusing on hydrogen vehicles among total number of cars in the future. - Magnitude of impact : 46 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 | As demands for eco-friendly vehicles increase globally, HMC continues to expand production and development of electric vehicles. Demand for batteries is expected to increase to 16GW by 2020 and up to 96GW by 2030. Currently, HMC has signed a long-term supply agreement with global battery companies to procure batteries, and is considering investment in further production line. 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 65.72USD per kilogram (as of the third quarter of 2018), which is twice as high as two years ago (26.19 USD per kilogram as of the third quarter of 2016). 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 facility in its Asan plant and laboratory to convert the energy usage into renewable energy and recently installed ESS at its Ulsan plant. In addition, in phases, we are building a rooftop solar PV generation facility of about 26,945kW in the Ulsan factory proving ground since August 2018 with the aim of completion in October 2020 (not self-consumed). 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 reinforce 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, in order to reduce CO2 and improve fuel efficiency through high efficiency of existing internal-combustion vehicles, it is developing in three ways, such as maximizing fuel efficiency for power-generating and transmitting powertrains, minimizing energy loss, and utilizing renewable energy. The company plans to introduce electric vehicles with a mileage of 400 kilometers or more in 2020 and 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 2018, we established an energy management system at our Asan plant to examine energy use and greenhouse gas emissions in real time, thereby promoting efficient activities for energy saving and eliminating wastage factor during non-production hours. These have resulted in reduction in GHG emissions of 3,700 tons, and in the cost of energy of KRW 960 million annually. In addition, the Czech business site has implemented energy efficiency enhancement activities by replacing existing fluorescent lamps with high efficiency LEDs. - Magnitude of impact : The cost of investments in reducing greenhouse gases in 2018 was around 13.1 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 been factored into your financial planning process.**

|  |  |  |
| --- | --- | --- |
|  | **Relevance** | **Description** |
| Revenues | Impacted | HMC 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 are affected by various regulations, 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, due to climate change, and those are 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. In 2018, KONA EV(SUV) and NEXO FCEV) were also launched. The market share in U.S. market accounted for 3.9 percent in 2018 and hybrid and electric vehicles won title of fuel efficiency in the same market. In the European market in 2018, the market increased by 3.6% compared to last year due to the effect of new vehicles by the IONIQ electric cars and the Kona, accounting for 3.4% 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 2018 by the Ministry of Environment is 1,464,000 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 2018, the company invested about 13.88 billion KRW to develop technologies for reducing greenhouse gases, repair and operation of air protection facilities - magnitude of impact : The company spent about 13.1 billion KRW on reducing environmental pollution at all domestic and overseas sites for reducing greenhouse gases during 2018, 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 Korea Electric Vehicle Charging Service will be charge of establishment and management of electric vehicle chargers in the future, and will distribute capital continuously through internal procedures and decisions for further infrastructure investment. 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 has started pilot operation in January 2018. HMC is leading the popularization of hydrogen and electric vehicles as it plans to supply "H Station" which is directly invested and establish, and invested about 20 billion KRW and more in a special purpose company, the Hydrogen energy Network (HyNet), with government and the Korea Gas Corporation. - Magnitude of impact : The company currently invested 22.4 billion KRW(2.4 billion KRW for infrastructure for charging electric bus and 20 billion KRW for infrastructure for charging hydrogen vehicles) 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 high. |
| 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 inevitable increase of 11.4% 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 in 2016. 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 1,000 tons of 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 (HEV/PHEV/EV), KONA and Tucson FCEV set a record of 36,000 units in the European market, taking 7 percent of the total European market sales.

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) in January 2016, released electric vehicles(EV) in 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 in February 2017. In addition, KONA EV was successfully launched in 2018, which means success of developing a small electric SUV.

## **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 through linear regression analysis considering its 2030 GHG reduction roadmap. 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. A total of 44 models dedicated to eco-friendly vehicles (electric vehicles), one and more models each year, will be launched and 1.67 million units will be sold annually by 2025. We also established countermeasures responding to climate change and blackout for domestic production plants, laboratory and business partners by 2030. In particular, in order to realize an hydrogen fuel-based eco-friendly society, about 8 trillion KRW has been invested by 2030 to enhance and popularize the competitiveness of hydrogen electric vehicle technology. In 2018, the Company released KONA HEV/PHEV/EV and NEXO (FCEV) and expanded its lineup of environmental cars, exceeding 1 million units of global green car sales, and KONA EV recorded the longest mileage among global electric vehicles. |

## **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

### **Targeted % 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

### **% of target achieved**

14.9

### **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 by 2030 was announced, and the reduction rate of the car industry is 20.5%, based on BAU. However, 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 by 2050 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

### **Targeted % 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

### **% of target achieved**

7.6

### **Target status**

Underway

### **Please explain**

On November 4th, 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 initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

|  |  |  |
| --- | --- | --- |
|  | **Number of initiatives** | **Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked \*)** |
| Under investigation | 1 | 0 |
| To be implemented\* | 1 | 1051 |
| Implementation commenced\* | 3 | 289 |
| Implemented\* | 73 | 62005 |
| Not to be implemented | 0 | 0 |

## **C4.3b**

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

### **Initiative type**

Process emissions reductions

### **Description of initiative**

Changes in operations

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

224

### **Scope**

Scope 1

### **Voluntary/Mandatory**

Voluntary

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

60000000

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

4820000000

### **Payback period**

<1 year

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

6-10 years

### **Comment**

Process emission reduction through the change in the dynamo test operation of the diesel engine and the installation of the new facility (dust collector inverter).

### **Initiative type**

Process emissions reductions

### **Description of initiative**

New equipment

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

714

### **Scope**

Scope 1

### **Voluntary/Mandatory**

Voluntary

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

190000000

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

1073000000

### **Payback period**

4 - 10 years

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

6-10 years

### **Comment**

Process emission reduction through the change in the dynamo test operation of the diesel engine and the installation of the new facility (dust collector inverter).

### **Initiative type**

Energy efficiency: Building services

### **Description of initiative**

HVAC

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

244

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

58000000

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

950000000

### **Payback period**

16-20 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.)

### **Initiative type**

Energy efficiency: Building services

### **Description of initiative**

Lighting

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

1237

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

307000000

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

2207000000

### **Payback period**

4 - 10 years

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

6-10 years

### **Comment**

Replacement of outdated (15 years or more) low-efficiency equipment to high-efficiency equipment (LED lights, air conditioning equipment, motors, boilers, etc.)

### **Initiative type**

Energy efficiency: Processes

### **Description of initiative**

Process optimization

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

37282

### **Scope**

Scope 1

### **Voluntary/Mandatory**

Voluntary

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

9286000000

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

4109000000

### **Payback period**

<1 year

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

6-10 years

### **Comment**

Process optimization realization by applying timer, standardizing operating time, configuring power saving circuit and replacing facility location.

### **Initiative type**

Low-carbon energy installation

### **Description of initiative**

Solar PV

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

1562

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

89546848

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

1066000000

### **Payback period**

11-15 years

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

11-15 years

### **Comment**

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

### **Initiative type**

Other, please specify (The company has carried out energy conservation campaigns involving power outages in lunch time and recycling of reusable paper.)

### **Description of initiative**

<Not Applicable>

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

19201

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

5034810809

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

500000000

### **Payback period**

1-3 years

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

6-10 years

### **Comment**

The company has reduced its annual 19,201 tons through energy conservation campaigns, power outages in lunchtime and recycling of reusable paper. HMC has installed sensors that automatically power on and off based on detecting human behaviors, resulting in increased energy efficiency.

### **Initiative type**

Energy efficiency: Processes

### **Description of initiative**

Machine replacement

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

1541

### **Scope**

Scope 1

### **Voluntary/Mandatory**

Voluntary

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

406000000

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

4763000000

### **Payback period**

>25 years

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

11-15 years

### **Comment**

Reduction in energy usage and GHG emissions through utilizing high efficiency insulator and replacing outdated equipment to high-efficiency equipment (circulating pump, premixer and motor).

## **C4.3c**

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

|  |  |
| --- | --- |
| **Method** | **Comment** |
| Dedicated budget for low-carbon product R&D | HMC is organizing a budget for R&D for eco-friendly vehicles with regard to global vehicle regulations on greenhouse gas emissions. |
| Dedicated budget for energy efficiency | HMC is also required to set goals for reducing greenhouse gases and energy for its new building construction, 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 successfully launched eco-friendly car models. In 2018, with successful launch of KONA EV and NEXO FCEV, we have expanded our product lines into full-electric vehicles. The company’s accumulated sales unit of all eco-friendly cars reached over 530,000 in 2018, consisting over 50% of the group’s whole sales figure. Hyundai Motor Group has set the goal of having at least 44 eco-friendly vehicle models by 2025, and annual sales of 1.67 million eco-friendly vehicles by 2025. In particular, we aim to lead the global market for electric vehicles by developing a complete range of electrification models, including HEVs, EVs, and FCEVs.

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

Low-carbon product and avoided emissions

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

Other, please specify (Korean Ministry of Environment has created National Life Cycle Inventory(LCI) Database. Most of our products are now registered on LCI, providing their carbon footprint. Based on the data, HMC is able to calculate emissions of our low-carbon product.)

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

5.3

### **Comment**

The unit sales of HMC's eco-friendly car models reached 91,037 in 2018, which are about 5.3% of the company's global sales unit(1,711,594). HEV and PHEV can increase fuel efficiency that saves CO2 emissions. Also, our full-electric models such as KONA EV and NEXO FCEV play significant roles to reduce CO2 emissions.

## **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?**

### **Reporting year**

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

831180

### **Start date**

January 1 2018

### **End date**

December 31 2018

### **Comment**

## **C6.2**

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

### **Row 1**

### **​Scope 2, location-based​**

We are reporting a Scope 2, location-based figure

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

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

### **Comment**

## **C6.3**

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

### **Reporting year**

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

1920126

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

<Not Applicable>

### **Start date**

January 1 2018

### **End date**

December 31 2018

### **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**

602428.91

### **Emissions calculation methodology**

-Calculation : Number of sales of certified products which carbon labelling in 2018 \* GHG emission factor before manufacture = 602,428.91 tCO2eq -Certified products which carbon labelling in 2018 : 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) -For products that have not been certified for carbon labelling, they are calculated based on similar models based on body, chassis and other aspects. -Total number of sales of certified products which carbon labelling in 2018 (Domestic sales) : 184,344

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

100

### **Explanation**

HMC has obtained and managed the carbon labelling for its released major products. We collected the number of sales of certified products of carbon labelling for year of 2018, reflecting GHG emission factor before manufacture, and then calculated the GHG emissions of purchased products and services.

### **Capital goods**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

2493.37

### **Emissions calculation methodology**

-Data for desktops and laptops provided in 2018 are collected from each operation sites. The result is used to calculate GHG emissions factor and the subsequent amount of GHG emissions. -Total : 9,440 units (desktop 5,659 units, monitor 3,781units) Calculation: Purchase quantity(9,440 units) \* (Production emission factor of capital goods) -Emissions of GHG = (Number of desktops purchased \* Emission factor of desktops) + (Monitors purchased \* Emission factor of monitors) = 2,493.37 tCO2eq -Emission factor of desktops : 351.7 kgCO2/unit (Average emission factor of certified products of carbon labelling)-Emission factor of monitors : 133.06 kgCO2/unit (Emission factor of a Samsung Electronics monitor) [Reference]Emission factor of capital goods production : Using the emission factor of carbon labelling that is market http://www.epd.or.kr/information/dataView.do?bbsCode=6&mode=view&bbsClass=&searchKind=&pageIndex=1&bbsIdx=3072

### **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. -Total : 9,440 units (desktop 5,659 units, monitor 3,781units

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

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

57813.59

### **Emissions calculation methodology**

-GHG emissions calculated by the national emissions factor for purchased fuels -GHG emissions = Amount of fuel purchased \* Emissions factor for producing each fuel type -Amount of fuel purchased : Gas/Diesel 6,789,388 l, LNG 215,697,187 m3, indoor kerosene 549,732 l, propane 37,647 kg, gasoline 9,692,862 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. Fuel usage is calculated as scope 1 and 2.

### **Upstream transportation and distribution**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

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**

2745.6

### **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 = 2,745.60 tCO2eq (Emissions factor of Carbon : Carbon labelling LCI DB(Reference from http://www.epd.or.kr/lci/co204.asp))

### **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**

38046.84

### **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= 13.77 tCO2 \* 2,763 team \* 3 = 38,046.84 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 2018. 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**

17431

### **Emissions calculation methodology**

-Total of 680 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 50km/h, and annual working days (245 days) -Daily fuel consumption= Number of commuter buses (unit) X operating time (hr) X average speed (km/hr) / vehicle fuel efficiency (km/L) = 680\* 3\* 50 /3.75= 27,200L GHG emissions = fuel consumed\* heating value \* emission factor \* working days = 27,200L \* 35.3 \*74.1 / 1000000 \*245= 17,431 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**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **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**

845987.2

### **Emissions calculation methodology**

Amount of CO2 emissions from Glovis(Transportation + Vessel section) = 31,981 + 814,006 = 845,987.2 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**

131775.64

### **Emissions calculation methodology**

- Calculation : Number of sales of certified products which carbon labelling in 2017 \* GHG emission factor when processing = 131,775.64 tCO2eq -Certified products which carbon labelling in 2018 : 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 2018 (Domestic sales) : 184,344

### **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. We collected the number of sales of certified products of carbon labelling for year of 2018, reflecting GHG emission factor during processing, and then calculated the GHG emissions of purchased products and services.

### **Use of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

3576346.3

### **Emissions calculation methodology**

-Calculation : Number of sales of certified products which carbon labelling in 2017 \* GHG emission factor when using = 3,576,346.30 tCO2eq -Certified products which carbon labelling in 2018 : 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 2018 (Domestic sales) : 184,344

### **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. We collected the number of sales of certified products of carbon labelling for year of 2018, reflecting GHG emission factor during using, and then calculated the GHG emissions of purchased products and services.

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

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

4938.15

### **Emissions calculation methodology**

-Calculation : Number of sales of certified products which carbon labelling in 2017 \* GHG emission factor when discarding = 4,938.15 tCO2eq -Certified products which carbon labelling in 2018 : 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 2018 (Domestic sales) : 184,344

### **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. We collected the number of sales of certified products of carbon labelling for year of 2018, reflecting GHG emission factor when discarding, and then calculated the GHG emissions of purchased products and services.

### **Downstream leased assets**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

1528.33

### **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= 1,528.33 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**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

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

### **Investments**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

378356.97

### **Emissions calculation methodology**

-Calculation : GHG emissions of invested company \* investment share (%) = 378,356.97 tCO2eq -Companies reflecting when calculating GHG (holding company) : KIA Motors, Hyundai Wia, Hyundai PowerTech , Hyundai Dymos - Only included emissions from companies HMC holding more than 25% of shares.

### **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**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

### **Other (downstream)**

### **Evaluation status**

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

## **C6.7**

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

No

## **C6.10**

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

### **Intensity figure**

0.0152296

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

2751306

### **Metric denominator**

Other, please specify (total capital (per one hundred million KRW))

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

180655752

### **Scope 2 figure used**

Location-based

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

0.17

### **Direction of change**

Decreased

### **Reason for change**

The company performed reduction activities actively 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, developing eco-friendly products and improving efficiency of vehicles production, improving fuel-efficiency, and etc. Due to that initiatives, intensity figures of 2018 decreased 0.17% despite of increased total capital of HMC. -2018 GHG emissions : 2,751,306 tCO2eq, 2018 total capital (100 million KRW) : 180,655,752, intensity figure: 0.0152296 -2017 GHG emissions : 2,718,503 tCO2eq, 2017 sales(100 million KRW) : 178,199,454, intensity figure: 0.0152554 -Rate of change compared to last year: (0.0152296 - 0.0152554) / 0.0152554 \*100) = - 0.17 %

## **C7. Emissions breakdowns**

## **C7.1**

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

Yes

## **C7.1a**

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

|  |  |  |
| --- | --- | --- |
| **Greenhouse gas** | **Scope 1 emissions (metric tons of CO2e)** | **GWP Reference** |
| CO2 | 829870 | IPCC Second Assessment Report (SAR - 100 year) |
| CH4 | 466 | IPCC Second Assessment Report (SAR - 100 year) |
| N2O | 844 | 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 | 521020 |
| United States of America | 32629 |
| China | 155128 |
| India | 15796 |
| Turkey | 26964 |
| Czechia | 34945 |
| Russian Federation | 36853 |
| Brazil | 7845 |

## **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 | 344597 | 35.538617 | 129.385986 |
| Asan plant | 44082 | 36.847105 | 126.868464 |
| Jeonju plant | 46764 | 35.948515 | 127.136278 |
| Research facility | 66002 | 37.15864 | 126.818919 |
| Headquarters private building | 9291 | 37.464503 | 127.043076 |
| Service center | 7329 | 37.53219 | 126.951892 |
| Sales private building | 2955 | 37.577916 | 126.987533 |
| USA production plant | 32629 | 32.279691 | -86.330261 |
| China/Beijing production plant | 151768 | 40.12175 | 116.64783 |
| China/Szechuan Hyundai production plant | 3360 | 30.12108 | 104.64811 |
| India production plant | 15796 | 12.964047 | 79.949547 |
| Turkey production plant | 26964 | 40.77573 | 30.03881 |
| Czech production plant | 34945 | 49.676134 | 18.437415 |
| Russia production plant | 36853 | 60.061117 | 30.130185 |
| Brazil production plant | 7845 | -22.682605 | -47.603858 |

## **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 | 831180 | <Not Applicable> | Total of activities related to vehicle production 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)** |
| Republic of Korea | 1060379 | 0 | 2267996 | 722 |
| United States of America | 132985 | 0 | 266289 | 0 |
| China | 330102 | 0 | 550179 | 0 |
| India | 244449 | 0 | 294504 | 60514 |
| Turkey | 26149 | 0 | 56189 | 0 |
| Czechia | 88418 | 0 | 149132 | 0 |
| Russian Federation | 33195 | 0 | 73640 | 0 |
| Brazil | 4449 | 0 | 63343 | 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 | 645019 | 0 |
| Asan plant | 87750 | 0 |
| Jeonju plant | 83782 | 0 |
| Research facility | 191695 | 0 |
| Headquarters private building | 21985 | 0 |
| Service center | 14506 | 0 |
| Sales private building | 15642 | 0 |
| USA production plant | 132985 | 0 |
| China/Beijing production plant | 315470 | 0 |
| China/Szechuan Hyundai production plant | 14632 | 0 |
| India production plant | 244449 | 0 |
| Turkey production plant | 26149 | 0 |
| Czech production plant | 88418 | 0 |
| Russia production plant | 33195 | 0 |
| Brazil production plant | 4449 | 0 |

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

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Scope 2, location-based, metric tons CO2e** | **Scope 2, market-based (if applicable), metric tons CO2e** | **Comment** |
| Cement production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Chemicals production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Coal production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Metals and mining production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (upstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (downstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Steel production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Transport OEM activities | 1920126 | 0 | Total of activities related to vehicle production 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**

0.000064

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

3576346.3

### **Metric denominator**

p.km

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

55303200000

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

-6.72

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

184344

### **Vehicle lifetime in years**

10

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

12000

### **Load factor**

We assume HMC's each car models can be occupied with 2.5 passengers/unit.

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

HMC’s sales volume in 2018 decreased 52,436 vehicles and dropped 6.72 units per KRW unit from the last year 2017. The product that received carbon labelling from the Korean government and was calculated by the Scope 3 category 11 not the whole model standard was targeted only. The total sales of HMC, 1,711,594 units in 2018 and 1,651,318 units in 2017, increased by about 3.65%. In addition, the amount of Scope 3 emissions fell down more than rate of sales decrease, which shows that production and development of eco-friendly cars is effective in emissions reduction.

### **Activity**

Light Duty Vehicles (LDV)

### **Emissions intensity figure**

0.000069

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

4937006.49

### **Metric denominator**

p.km

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

71212800000

### **% 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**

We assume HMC's each car models can be occupied with 2.5 passengers/unit.

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

HMC’s sales volume in 2018 decreased 52,436 vehicles and dropped 6.72 units per KRW unit from the last year 2017. The product that received carbon labelling from the Korean government and was calculated by the Scope 3 category 11 not the whole model standard was targeted only. The total sales of HMC, 1,711,594 units in 2018 and 1,651,318 units in 2017, increased by about 3.65%. In addition, the amount of Scope 3 emissions fell down more than rate of sales decrease, which shows that production and development of eco-friendly cars is effective in emissions reduction.

## **C7.9**

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

Increased

## **C7.9a**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Change in emissions (metric tons CO2e)** | **Direction of change** | **Emissions value (percentage)** | **Please explain calculation** |
| Change in renewable energy consumption | 50506 | Decreased | 1.86 | Hyundai Motor Company is making a lot of efforts to save the energy with the aim of building an eco-friendly plant. It reduced 334 tCO2 through solar power plants in the laboratory. It also consumed 60,514 tCO2 annually and reduced 50,172 tCO2 through power generated from renewable energy in the plant if India. Change rate of emissions(%) = Amount of carbon emissions reduction due to reduction activities / Carbon emissions in 2017 (50,506/2,718,503 tCO2)\*100 = 1.86%) |
| Other emissions reduction activities | 62005 | Decreased | 2.28 | 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 42,803 tCO2e compared to 2017 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 2017 (62,005/2,718,503)\*100= 2.28%) |
| Divestment |  | <Not Applicable> |  |  |
| Acquisitions |  | <Not Applicable> |  |  |
| Mergers |  | <Not Applicable> |  |  |
| Change in output |  | <Not Applicable> |  |  |
| Change in methodology |  | <Not Applicable> |  |  |
| Change in boundary | 21519 | Increased | 0.79 | The response of 2018 included only three of the five plants in China (1 to 3 plant), but since 2019, it is calculated including the emissions of the remaining two plants (4 to 5 plant). Therefore, the emissions of Chinese factories increased. (Calculation method: changes in Scope 2 of Chinese plants) Amount of carbon emissions reduction due to reduction activities / Carbon emissions in 2017 (21,519/2,718,503 tCO2)\*100 = 0.79%) |
| 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 | 28918474 | 28918474 |
| Consumption of purchased or acquired electricity | <Not Applicable> | 60514 | 4541655.11 | 4602169.11 |
| Consumption of purchased or acquired heat | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired steam | <Not Applicable> | 11838.44 | 0 | 11838.44 |
| Consumption of purchased or acquired cooling | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of self-generated non-fuel renewable energy | <Not Applicable> | 722.15 | <Not Applicable> | 722.15 |
| Total energy consumption | <Not Applicable> | 73074.6 | 33460129.11 | 33460129.11 |

## **C8.2b**

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

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

## **C8.2c**

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

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

Liquefied Natural Gas (LNG)

### **Heating value**

HHV (higher heating value)

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

28761820

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

0

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

28071503

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

659204

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

<Not Applicable>

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

<Not Applicable>

### **Comment**

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

Kerosene

### **Heating value**

Unable to confirm heating value

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

6221

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

0

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

6221

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

0

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

<Not Applicable>

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

<Not Applicable>

### **Comment**

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

Petrol

### **Heating value**

Unable to confirm heating value

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

75928

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

0

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

75928

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

0

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

<Not Applicable>

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

<Not Applicable>

### **Comment**

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

Diesel

### **Heating value**

Unable to confirm heating value

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

70732

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

257

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

70474

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

0

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

<Not Applicable>

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

<Not Applicable>

### **Comment**

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

Propane Gas

### **Heating value**

Unable to confirm heating value

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

3774

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

0

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

3774

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

0

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

<Not Applicable>

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

<Not Applicable>

### **Comment**

## **C8.2d**

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

### **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

### **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

### **Comment**

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

### **Emission factor**

0.0561

### **Unit**

metric tons CO2e per GJ

### **Emission factor source**

National Guidelines on GHG emissions/energy target management which uses the IPCC Fourth Assessment Report

### **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

### **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

### **Comment**

## **C8.2e**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total Gross generation (MWh)** | **Generation that is consumed by the organization (MWh)** | **Gross generation from renewable sources (MWh)** | **Generation from renewable sources that is consumed by the organization (MWh)** |
| Electricity | 17614.99 | 17614.99 | 12222.15 | 722.15 |
| Heat | 1461427.7 | 1461427.7 | 0 | 0 |
| Steam | 659204.19 | 659204.19 | 0 | 0 |
| Cooling | 0 | 0 | 0 | 0 |

## **C8.2f**

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

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

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

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

Solar PV

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

Asia Pacific

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

722.15

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

0

### **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 2018 (self-consumed)

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

Power Purchase Agreement (PPA) with energy attribute certificates

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

Wind

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

Asia Pacific

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

60514

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

0

### **Comment**

About 20.5% of the power consumption at the Indian plant is generated from wind power.

### **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))

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

Asia Pacific

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

56678

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

0.2149

### **Comment**

HMC Ulsan plant purchased and used 44,882 MWh of waste heat(stream). And we reduced 12,169 tCO2 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**

1.57

### **Metric numerator**

tCO2e

### **Metric denominator**

Production: Vehicle

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

2751306

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

1747837

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

-4.29

### **Please explain**

In addition to increase in HMC's total amount of Scope 1 and Scope 2 in 2018 compared to 2017, production also jumped. The rise in overall efficiency indicates that emissions of Scope 1 and 2 decreased compared to production and, thereby, production-efficiency improved year-on-year.

## **C9. Additional metrics**

## **C9.1**

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

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

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

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

### **Technology**

Plug-in hybrid vehicle (PHEV)

### **Metric figure**

0.5

### **Metric unit**

% of total sales

### **Explanation**

There are two PHEV models of HMC in 2018, IONIC(PHEV) and SONATA(PHEV). The global sales of these two models are 9,031 units, which account for 0.5% of the total sales.

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

### **Technology**

Other, please specify (Battery electric vehicle (BEV)/Fuel cell electric vehicle (FCEV))

### **Metric figure**

2.6

### **Metric unit**

% of total sales

### **Explanation**

The three BEV/FCEV models of HMC is IONIC(EV), KONA(EV), NEXO(FE). The global sales of these three models are 45,139 units, which account for 2.6% of the total sales.

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Production

### **Technology**

Battery electric vehicle (BEV)

### **Metric figure**

44811

### **Metric unit**

Units

### **Explanation**

HMC has announced its development strategy on eco-friendly vehicles called “2020.22.2Project” in 2014, which shall be based on Blue Drive technology. Aiming to build more than 22 product-lines for eco-friendly vehicles, and to secure the next-generation market by 2020. HMC produced total 44,811 electronic vehicles in 2018. ( KONA-23,427, IONIQ - 21,384)

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Production

### **Technology**

Fuel cell electric vehicle (FCEV)

### **Metric figure**

1049

### **Metric unit**

Units

### **Explanation**

HMC has announced its development strategy on eco-friendly vehicles called “2020.22.2Project” in 2014, which shall be based on Blue Drive technology. Aiming to build more than 22 product-lines for eco-friendly vehicles, and to secure the next-generation market by 2020. HMC released a fuel cell electric vehicle, NEXO, in 2017 and produced 1,049 units in 2018.

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

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

### **Activity**

Light Duty Vehicles (LDV)

### **Investment start date**

January 1 2017

### **Investment end date**

December 31 2019

### **Investment area**

Services

### **Technology area**

Infrastructure

### **Investment maturity**

Small scale commercial deployment

### **Investment figure**

2644000000

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

0-20%

### **Please explain**

HMC signed an MOU with SK Networks to establish 'Mobility Lifestyle Charging Station' dedicated for electric vehicles. In accordance with the agreement, they will transform space current internal-combustion gas stations into electric car charging stations. Hyundai will develop high-speed chargers with a capacity of 350 kW that would reduce charging period and release application for the exclusive use of electric car owners to enhance convenience. The first 'Mobility Lifestyle Charging Station' will be build in SK-owned gas stations in Seoul’s Gil-dong, Gangdong-gu within 2019 and will have over 10 of the latest high-speed chargers.

### **Activity**

Light Duty Vehicles (LDV)

### **Investment start date**

January 1 2018

### **Investment end date**

December 31 2018

### **Investment area**

R&D

### **Technology area**

Electrification

### **Investment maturity**

Applied research and development

### **Investment figure**

312200000000

### **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. kilometers or more in 2020. It launched KONA HEV/PHEV/EV, NEXO(FCEV) in 2018 and successfully developed "first generation silicon solar roof," a solar system that charges battery through solar PV panel installed in the vehicle. The solar system is planned to be applied first in green cars from 2019 and then to develop internal-combustion vehicles and bodies in the future. We are currently developing Porter EV, a sport utility vehicle (SUV) electric vehicle, with a goal of releasing it in the late 2019 and plan to introduce electric SUV with a mileage of 400 kilometers or more after 2020. In this regard, the company plans to significantly increase its investment in R&D and to 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.

## **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**

[2018\_verification\_China.jpg](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/rtQzxI8usUKEBBq8dSBQvg/2018verificationChina.jpg)

[Assurance\_Statement\_Hyundai Motor\_domestic Scope 1+2\_ENG\_2019.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/s0rN0ZJTdkyBX2zOpq8sRA/AssuranceStatementHyundaiMotordomesticScope12ENG2019.pdf)

[2018\_verification\_USA.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/8mFzlwCBQkSKhqWvtE_4gg/2018verificationUSA.pdf)

[2018\_verification\_HMMC\_Czech Republic.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/e2A3Q76zlUCTL5fwsiFVMA/2018verificationHMMCCzechRepublic.pdf)

### **Page/ section reference**

1

### **Relevant standard**

ISO14064-3

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

84

### **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**

[2018\_verification\_China.jpg](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/rtQzxI8usUKEBBq8dSBQvg/2018verificationChina.jpg)

[Assurance\_Statement\_Hyundai Motor\_domestic Scope 1+2\_ENG\_2019.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/s0rN0ZJTdkyBX2zOpq8sRA/AssuranceStatementHyundaiMotordomesticScope12ENG2019.pdf)

### **Page/ section reference**

1

### **Relevant standard**

ISO14064-3

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

66

### **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**

Third party verification/assurance underway

### **Attach the statement**

[hmc-2019-sustainability-report-0719-ko-f.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GEIjxAh-F0mQYgTFE1aipQ/hmc2019sustainabilityreport0719kof.pdf)

### **Page/ section reference**

111, 122-123

### **Relevant standard**

A1000AS

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

34

## **C10.1b**

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

### **Scope**

Scope 3- all relevant categories

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

Annual process

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

Complete

### **Attach the statement**

[hmc-2019-sustainability-report-0719-ko-f.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GEIjxAh-F0mQYgTFE1aipQ/hmc2019sustainabilityreport0719kof.pdf)

### **Page/section reference**

111, 122-123

### **Relevant standard**

AA1000AS

## **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 | AA1000AS | Emission reduction activities are disclosed in HMC's Sustainability report that receives the third-party verification.  [hmc-2019-sustainability-report-0719-ko-f.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GEIjxAh-F0mQYgTFE1aipQ/hmc2019sustainabilityreport0719kof.pdf) |
| C1. Governance | Other, please specify (climate-related governance) | AA1000AS | Emission reduction activities are disclosed in HMC's Sustainability report that receives the third-party verification.  [hmc-2019-sustainability-report-0719-ko-f.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GEIjxAh-F0mQYgTFE1aipQ/hmc2019sustainabilityreport0719kof.pdf) |
| C3. Business strategy | Other, please specify (Climate-related business strategy) | AA1000AS | Climate-related business strategies are disclosed in HMC's Sustainability report that receives the third-party verification.  [hmc-2019-sustainability-report-0719-ko-f.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GEIjxAh-F0mQYgTFE1aipQ/hmc2019sustainabilityreport0719kof.pdf) |
| C6. Emissions data | Other, please specify (Emission data) | AA1000AS | Emission data is disclosed in HMC's Sustainability report that receives the third-party verification.  [hmc-2019-sustainability-report-0719-ko-f.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GEIjxAh-F0mQYgTFE1aipQ/hmc2019sustainabilityreport0719kof.pdf) |
| C8. Energy | Other, please specify (Energy consumption figures) | AA1000AS | Energy consumption figures are disclosed in HMC's Sustainability report that receives the third-party verification.  [hmc-2019-sustainability-report-0719-ko-f.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GEIjxAh-F0mQYgTFE1aipQ/hmc2019sustainabilityreport0719kof.pdf) |
| C10. Verification | Other, please specify (Verification of Scope 1, 2, and 3 emissions) | AA1000AS | Verification of Scope 1, 2, and 3 emissions is disclosed in HMC's Sustainability report that receives the third-party verification.  [hmc-2019-sustainability-report-0719-ko-f.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GEIjxAh-F0mQYgTFE1aipQ/hmc2019sustainabilityreport0719kof.pdf) |

## **C11. Carbon pricing**

## **C11.1**

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

Yes

## **C11.1a**

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

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**

13.3

### **Period start date**

January 1 2018

### **Period end date**

December 31 2018

### **Allowances allocated**

340740

### **Allowances purchased**

29992

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

325732

### **Details of ownership**

Facilities we own and operate

### **Comment**

### **EU ETS**

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

4.2

### **Period start date**

January 1 2018

### **Period end date**

December 31 2018

### **Allowances allocated**

43449

### **Allowances purchased**

0

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

34945

### **Details of ownership**

Facilities we own and operate

### **Comment**

### **Korea ETS**

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

62.7

### **Period start date**

January 1 2018

### **Period end date**

December 31 2018

### **Allowances allocated**

1464000

### **Allowances purchased**

117399

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

1581399

### **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 globally. Internal carbon prices have been utilized since 2017 through phased review in 2016 to induce low-carbon investment in the mid- to long-term in order 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 25,000 KRW as of the end of the 2018). The relevant price is judged that regulations on emissions price and carbon emissions in mid- to long-term will be strengthened 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 promoting purchase of 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**

Engagement & incentivization (changing supplier behavior)

### **Details of engagement**

Run an engagement campaign to educate suppliers about climate change

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

7.3

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

89.3

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

76.2

### **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, Our Quality and Technology Volunteer Group and Supplier Support Group are organized and reside on the corresponding company to support free consulting for R&D of eco-friendly vehicles, production technologies(fuel efficiency, etc.) and quality for 3 to 12 months.

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

HMC has been supporting its suppliers 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 2018, the size of suppliers increased 3.8 times from 2001, and the number of joint overseas companies expanded to about 770 companies. As a result, HMC was selected as the most valuable company for the fifth consecutive year in win-win index by the Joint Growth Commission in 2018. 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 180 and more 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**

### **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**

10.7

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

5.6

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

76.2

### **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 2018, it provided 139.7 billion KRW to some 220 component companies to establish a win-win cooperation system with their tier 2 and tier 3 suppliers that possess basic R&D capabilities. 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-saving 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 businesses.

### **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 have been supported for g 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 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**

## **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

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

100

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

63.2

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

Basically, the customer of HMC is defined as individual who purchases the Company’s vehicles. 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. Beginning with August 2017 in Yeouido, 'Hydrogen Electric House Season 1' were held in Gwangju, Ulsan, and Changwon and attracted the high interest and response from visitors. In 2018, we have made a step forward to establish a future eco-friendly society through expanding lineup of green cars, applying next generation system and accomplishing a cumulative 1 million units of global green vehicle sales. The sales of eco-friendly vehicles increased by about 1.5 times compared to 2017. (53,167 units sold in 2018 based on IONIQ EV/PHEV, 21,793 units sold in 2017 based on IONIQ EV/PHEV/KONA EV)

### **Type of engagement**

Collaboration & innovation

### **Details of engagement**

Run a campaign to encourage innovation to reduce climate change impacts

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

100

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

63.2

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

Hyundai Motor Company establishes CSV strategy system and manage mid- to long-term CSV portfolio for conducting social contribution. Among the five CSV areas, the area of "eco-friendly" promotes development of eco-friendly products, recycling of resources, and other activities to reduce environmental pollution. IONIQ Forest and Hyundai Green Zone Project is the representative activities in this area. (IONIQ Forest) Since 2016, HMC has been carrying out the IONIQ Forest project with Tree Planet and SUDOKWON Landfill Site Management Corp, planting trees to reduce fine dust at the Incheon metropolitan landfill site. The goal of the IONIQ Forest project is to build ‘fine dust-preventing forests’ through planting over 30,000 trees by 2020 with forest-building experts, IONIQ customers, and participants of the IONIQ Longest Run. In April 2018, tree-planting volunteers planted 1,000 trees. Moreover, 2,000 zelkovas and pine trees were planted by volunteers and 200 customers who participated in the IONIQ Longest Run in November. (The Hyundai Green Zone Project) The Hyundai Green Zone Project is a global ecological restoration project that Hyundai Motor Group has been carrying out since 2008. The first Hyundai Green Zone Project was conducted from 2008 to 2013, and covered 50 million square meters in Chakanor, Apakachi, Inner Mongolia, which is a major source of yellow dust in China. As a result, we successfully converted an alkaline salt desert into grasslands with abundant grass. Since 2014, we have been engaging in activities to restore about 40 million square meters of the Baoshaodainao Nur, Zhenglan Qi and Haginor regions into an ecology that is suitable for the climate environment of Inner Mongolia. In addition, the Hyundai Motor Group’s Happy Move Global Youth Volunteers, college student volunteers in Beijing, employees and their family members of Hyundai and BHMC and other participants constantly participate in the project to prevent desertification. The Company has conducted a variety of social contribution activities, as well as the Hyundai Green Zone Project which we have been carrying out for over 10 years. HMC ranked first in the automobile industry in the ‘China Corporate Social Responsibility Index’ evaluation of the China Academy of Social Sciences in November 2018.

### **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“ at the Incheon metropolitan landfill site. 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 15,250 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. | To respond to regulations on emissions, the Company has strengthened Super Credit system and suggested solutions, such as time extension of establishing regulations on CO2 emissions after 2025 and delay of the period of introducing 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 analyzing potential reductions for setting reduction target for national Post-2020 and suggesting 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, Business Strategy Planning Division 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 Business Strategy Planning Division, and the enterprise-wide risk management team in the Business Strategy Planning Division 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**

[2018 Hyundai Motor Company\_Annual Report.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/t2xkvbyKa0Sz-N4WtgPSZA/2018HyundaiMotorCompanyAnnualReport.pdf)

### **Page/Section reference**

56-57, 98, 177, 355-356

### **Content elements**

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other, please specify (Energy Use(TJ), Carbon Labelling Product, Low-carbon Product Certification Status )

### **Comment**

### **Publication**

In voluntary sustainability report

### **Status**

Underway – previous year attached

### **Attach the document**

[hmc-2019-sustainability-report-0719-ko-f.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/GEIjxAh-F0mQYgTFE1aipQ/hmc2019sustainabilityreport0719kof.pdf)

### **Page/Section reference**

full page

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

Other, please specify (Reduction Activities, Risk&Opportunity )

### **Comment**

## **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) |