

C0. Introduction

C0.1

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

Hyosung Heavy Industries Co. Ltd. began by acquisition of Han Young Industrial Co., Ltd. In 1975. After merged into Hyosung Co. Ltd. In 1998, the construction / heavy industry division was spun off Hyosung Co., and newly established as Hyosung Heavy Industries Co., Ltd., on June 1st 2018. The headquarter is located in Seoul and the local workplaces consist of Hyosung R&D Labs under Hyosung Co. and a total of 5 plants.

Hyosung Heavy Industries is mainly involved in the heavy industries and the construction divisions. The heavy industry division has manufactured important power sources for electrical power systems such as electric motors, generators, and gears as well as crucial equipment such as UHV transformers, circuit breakers and LV-MV transformers supplied for building electrical power systems in the electric power industry and SOC projects. UHV transformers, Circuit breakers and LV-MV transformers, major products in the heavy industries, have continued a moderate rise depending on the global demand of replacing the old facilities and are expected to grow steadily as the demand of new renewable energy like solar and wind energy increases due to the development of new energy sources and the enhancement of environmental policies to respond to climate change in the globe. The construction division is the expansive key industry involving in the house construction which national life bases on and the building infrastructure facilities like roads and is expected to change into the developed one focusing on maintenance as the infrastructure completes and the housing supply rate improves. Considering the convergence with ICT high technology, the base of the fourth industrial revolution, and sustainable reconstruction of national land, its potential growth is expected. As the usage of communication data grows, the demand for DB center increases. Therefore, it plans to foster the construction of DB center as a new growth engine. Hyosung Heavy Industries is a subject company to the allocation of ETS, the government greenhouse gas(GHG) regulation and has the obligation to report its emissions every year. According to the "Framework Act On Carbon Neutrality And Green Growth For Coping With Climate Crisis" enacted in 2022, the government has set a national reduction target for 2030 to 40% reduction of total national GHG emissions compared to 2018. And Hyosung Heavy Industries, which belongs to the industrial sector aims to reduce 14.5% in 2030 (222.6 million tons) compared to 2018(260.5 million tons). In 2021, Hyosung Heavy Industries set emission targets equivalent to NDC (Nationally Determined Contribution). Hyosung Heavy Industries set 14.5 % reduction by 2030 compared to the total of the national GHG emissions of 2018 as the final emissions reduction target. In addition, Hyosung Heavy Industries established the green management vision 'realization of an eco-friendly company that leads a better life for mankind' and the 4 strategies 'reduction of GHG emissions, commercialization of low-carbon technology through development of eco-friendly technology, creation of an eco-friendly corporate culture, and establishment of stakeholder trust through environmental information disclosure ' to implement green management activities for all domestic business sites. The detailed promotion work is like the following, 'contribution to GHG emission reduction when using products, decline in subsidiary materials usage including water, utility, et cetera and expansion of recycling and reuse.' In August 2021, Hyosung Heavy Industries established the ESG Management Promotion Committee by integrating the EHS Committee and the CSR Committee, and established the ESG Management Team as a dedicated management team under the ESG Management Promotion Committee. The team manages the environment on climate change and check for safety management companywide. As of 2022, the safety environment team monitors every year, and internal ISO review is also conducted for 35 departments(25 for heavy industries and 10 for construction divisions).

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

January 1 2022

End date

December 31 2022

Indicate if you are providing emissions data for past reporting years

No

Select the number of past reporting years you will be providing Scope 1 emissions data for

<Not Applicable>

Select the number of past reporting years you will be providing Scope 2 emissions data for

<Not Applicable>

Select the number of past reporting years you will be providing Scope 3 emissions data for

<Not Applicable>

C0.3

(C0.3) Select the countries/areas in which you operate.

Republic of Korea

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 chosen approach for consolidating your GHG inventory.

Operational control

C-CN0.7/C-RE0.7

(C-CN0.7/C-RE0.7) Which real estate and/or construction activities does your organization engage in?

Please select

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	KR729804007

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 or committee	Responsibilities for climate-related issues
Chief Executive Officer (CEO)	<p>[Individual responsibility]</p> <p>Hyosung Heavy Industries established the ESG Management Promotion Committee by integrating the EHS Committee and the CSR Committee with the aim of strengthening ESG management, including the climate change sector under the direct control of the CEO and held the ESG Management Promotion Committee for the first time in August 2021. The CEO is chairman of this promotion committee and attended as chief decision maker as to receive a report and evaluate the overall performance of ESG management, including the current status of GHG emission rights, GHG reduction goals, and selection of excellent partners. The chief responsibility for responding to CC is assigned to the CEO of the Board of Directors. The chief responsibility is assigned to the CEO who is at the top position in the firm's management to connect CC issues to enterprise-wide business strategies and ensure that response plans are implemented efficiently in accordance with the top-down method.</p> <p>[The cases of decision making related to climate]</p> <p>Representative examples of climate-related decision making can explain the response to the Emission Trading System. Emission Trading System is not only a mandatory regulation, but also hugely impactful in financial terms, so Emission Trading System is classified as a significant risk as a result of the assessment. According to the guidelines of the ESG Management Promotion Committee, the management team reports the current status of GHG emission rights to the CEO and the board of directors. Key matters reported in 2022 included the current state of emissions and responses to the Emission Trading System, amount of estimated GHG emissions, projected financial profits, plans for the next year, etc. Once the review and decision-making of reported matters is made, they are reflected in the business plan and the financial plan for 2022. As another example of decision-making, Hyosung Co., Ltd. announced a declaration of support for TCFD through a resolution by the ESG Management Promotion Committee in 2022, which Hyosung Heavy Industries also participated in. Hyosung Heavy Industries plans to continue to strengthen its response to climate change and ESG management, which are key elements of corporate global competitiveness, through the declaration of support for TCFD.</p>

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	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding annual budgets Overseeing major capital expenditures Overseeing acquisitions, mergers, and divestitures Overseeing and guiding employee incentives Reviewing and guiding strategy Overseeing value chain engagement Reviewing and guiding the risk management process	<Not Applicable>	The CEO is the chief decision maker of ESG Management Promotion Committee and chairman of the board of directors. The ESG Management Promotion Committee reports on climate change issues (such as sustainable management vision, strategic establishment, and setting the GHG reduction targets), and the board finally approves activities such as business investment plans and budgeting. In 2022, the ESG Management Promotion Committee was held twice and the board of directors was held four times.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	The CEO of Hyosung Heavy Industries, who plays an important role in establishing the direction of action on climate change issues, was appointed chairman of the ESG Management Promotion Committee as an in-house director with climate change-related capabilities. The criterion used by Hyosung Heavy Industries to evaluate its expertise in climate change issues is whether it has expertise in energy efficiency projects and environmental policy establishment. The CEO earned a bachelor’s degree and master’s degree in electrical engineering at Yokohama University and worked as a development and systems engineer at TOSHIBA from 1982 to 2017, and eventually as president of TOSHIOBA Europe. Based on the expertise of the electrical engineering major and practical experience working in the power business department, he ultimately supports the development of many technologies in the power energy sector according to global carbon neutral stance. In addition, in 2007, TOSHIBA announced the "Environmental Vision 2050" containing mid- to long-term plans and will to actively respond to environmental problems. The CEO has professional management knowledge based on his experience working at TOSHIBA, which is proactively responding to climate change. He is focusing on developing eco-friendly solutions for all products in Hyosung Heavy Industries to respond quickly to eco-friendly transformation movements based on his expertise and is proactively responding to climate change issues by establishing environmental policies such as managing partners.	<Not Applicable>	<Not Applicable>

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Position or committee

Chief Executive Officer (CEO)

Climate-related responsibilities of this position

- Managing annual budgets for climate mitigation activities
- Providing climate-related employee incentives
- Developing a climate transition plan
- Implementing a climate transition plan
- Integrating climate-related issues into the strategy
- Monitoring progress against climate-related corporate targets
- Managing value chain engagement on climate-related issues
- Assessing climate-related risks and opportunities
- Managing climate-related risks and opportunities

Coverage of responsibilities

<Not Applicable>

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

Hyosung Heavy Industries operates the ESG Management Promotion Committee by integrating the EHS Committee and the CSR Committee as a management organization to systematically promote "green management" including responding to climate change at home and abroad, participating in GHG emission trading systems, and developing eco-friendly technologies etc. The ESG Management Promotion Committee, headed by the CEO, is operated for the purpose of making decisions to implement green management that complies with internal and external laws, identifies environmental issues, and responds to climate environmental risks. Hyosung Heavy Industries' green management includes responding to climate change and developing eco-friendly technologies, including the GHG emission trading system. The ESG Management Promotion Committee for Green Management is held semi-annually, and detailed operational matters are operated as follows. Climate change issues identified by the safety environment team by factory and the green management team of the headquarters are reported to ESG management executives, and decisions that need to be made are reported to ESG Management Promotion Committee, the top green management decision consultative body below the board level. After reviewing, the ESG Management Promotion Committee is finally approved through the board of directors on major agenda items that need to be reflected in management plans, such as company R&D strategies and policy decisions, considering the importance of each issue. After reviewing, the major agenda items that need to be reflected in management plans, such as company R&D strategies and policy decisions, considering the importance of each issue are finally approved through the quarterly board of directors. The ESG Management Team as a dedicated management team under the ESG Management Promotion Committee manages the environment, climate change and check for safety management companywide. As of 2022, the safety environment team monitors every year, and internal ISO review is also conducted for 35 departments(25 for heavy industries and 10 for construction divisions). The ESG Management Promotion Committee conducts management checks for climate change, environment, and safety companywide and collects climate change and safety management agendas from each plant's environmental safety managers and appoints "C-level" grade and ESG-related executives as members to strengthen the operation effect of the ESG Management Committee. In 2022, the ESG Management Promotion Committee planned to introduce and evaluate ESG management KPIs. So related departments could set KPIs for ESG management goals and performance and actively carry out and manage ESG management activities.

C1.3

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	Financial incentives are provided to Environmental/Sustainability Managers by reflecting whether Hyosung Heavy Industries achieves its GHG reduction goals and energy reduction goals as performance goals (hereinafter referred to as KPIs).

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).

Entitled to incentive

Chief Financial Officer (CFO)

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary
Bonus – set figure

Performance indicator(s)

Implementation of an emissions reduction initiative
Reduction in absolute emissions
Energy efficiency improvement
Reduction in total energy consumption

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

Hyosung Heavy Industries set the target on reduction in accordance with mid- to long-term plan for GHG reduction. Hyosung Heavy Industries has set annual KPIs to achieve its goal of reducing GHG emissions by 14.5% of total GHG emissions in 2018 by 2030 and provides financial incentives to CFO. Hyosung Heavy Industries provides monetary incentives in the form of financial incentives based on the results of goal achievement. This can be done through a proportional method, where a payment rate based on the evaluation grade is multiplied by the base monthly salary, or through a fixed amount method, where a predetermined sum is paid. KPI on managing climate change issues includes strengthening ESG management. These include collecting and reporting GHG reduction performance for each workplace to manage GHG emissions and reduction performance, conducting environmental education for all executives and employees, and managing CDP response and evaluation scores (acquired B, B-grade or higher)

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

Performance indicators of Hyosung Heavy Industries for "climate change-related goals" include the management on GHG emissions and reduction performance, environmental education for all executives and employees, CDP response, and evaluation score management, which are consistent with our mid- to long-term GHG reduction goals. Therefore, the payment of incentives for the achievement for KPI of CFO is contributing to the realization of Hyosung Heavy Industries' climate change-related reduction goals.

Entitled to incentive

Chief Technology Officer (CTO)

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary
Bonus – set figure

Performance indicator(s)

Implementation of an emissions reduction initiative
Reduction in absolute emissions
Energy efficiency improvement
Reduction in total energy consumption

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

Hyosung Heavy Industries set the target on reduction in accordance with mid- to long-term plan for GHG reduction. Hyosung Heavy Industries has set annual KPIs to achieve its goal of reducing GHG emissions by 14.5% of total GHG emissions in 2018 by 2030 and provides financial incentives to CTO. Hyosung Heavy Industries provides monetary incentives in the form of financial incentives based on the results of goal achievement. This can be done through a proportional method, where a payment rate based on the evaluation grade is multiplied by the base monthly salary, or through a fixed amount method, where a predetermined sum is paid. KPI on managing climate change issues includes securing and developing eco-friendly products such as eco-friendly 145Kv 40kA GIS and KEPCO 170Kv 4000A GIS.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

Performance indicators of Hyosung Heavy Industries for "climate change-related goals" include the securing eco-friendly products, which are consistent with our mid- to long-term GHG reduction goals. Therefore, the payment of incentives for the achievement for KPI of CTO is contributing to the realization of Hyosung Heavy Industries' climate change-related reduction goals.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	1	3	Hyosung Heavy Industries considers 1~3 years as 'short-term'.
Medium-term	3	5	Hyosung Heavy Industries considers 3~5 years as 'medium-term'.
Long-term	5	10	Hyosung Heavy Industries considers 5~10 years as 'long-term'.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

In August 2021, Hyosung Heavy Industries established an ESG management team for the purpose of clear maintenance and dedicated management of business R&R for ESG management with the aim of strengthening ESG management. The ESG management team conducted R&R maintenance for each department to manage environmental management, safety management, enterprise risk management, and employee capabilities. Major tasks such as environmental management are assigned to management team, safety environment team, and design team to manage risk and opportunity factors due to climate change. Each major department associated with environmental management conducts materiality assessment of the identified climate change risks and opportunity factors, and major risk and opportunity factors are reported to CEO, ESG management committee, and board of directors, and then decisions are made by them. Especially Hyosung Heavy Industries operates the company-wide delegation rule by granting responsibility and authority according to the financial impact of each project for significant risks and opportunity factors. In the case of Hyosung Heavy Industries, financial impact, defined as the scope of the business affected by the transcription, is used as criteria for identifying and evaluating climate change risks. And a factor that can have a significant impact on our financial impacts may be a decline in profit. Hyosung Heavy Industries uses revenue or operating profit from its respective department responsible for risk management as a quantitative indicator used to define these significant financial or strategic impacts. The occurrence of such a "change of more than 50% of sales or operating profit" is used as an indicator of significant financial or strategic impact and is reported to the ESG Management Promotion Committee and the Board of Directors. A representative example of the decline in profit may be the purchase of emission rights. For example, Hyosung Heavy Industries' estimated emissions are 71,126 tons in 2025, but if pre-allocation are only 68,288 tons, with the absence of reduction activities, an additional 2,838 tons of emissions rights must be purchased. In this case, a profit loss of KRW 87,978,000 (based on the internal carbon price of KRW 31,000) may occur. Therefore, Hyosung Heavy Industries holds a semi-annual ESG management promotion committee every year to understand the issue of purchasing emission permits and conducts a status report. In addition, we annually plan the budget and investment activities including physical and transition risks and opportunities caused by climate change and hold the Investment Review Subcommittee or the Investment Review Committee for a certain amount or more of budget at each PU (Performance Unit) and PG (Performance Group). In the case of intra-budget investment, if it is more than KRW 1 billion per case, decision of the board of directors is required. In the case of non-budget investment, KRW 500 million to KRW 1 billion is handled at the CEO level, and if it is more than KRW 1 billion, it is handled at the board level. Considering the best decision-making stage, Hyosung Heavy Industries is defined as a significant financial impact if it is more than KRW 500 million, which corresponds to all projects including climate change.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

(Process)

Hyosung Heavy Industries manages risks such as market uncertainty and internal-external risks and opportunities that can have a significant impact on its business activities. These risks are categorized as financial and non-financial (business continuity, management) risks at the time of evaluation, and the results evaluated in consideration of subsequent influence and likelihood of occurrence are defined as major risks.

The risk management process consists of "internal and external situation analysis – risk identification - risk evaluation - risk mitigation - risk monitoring and change management - reporting to the Board of Directors/Top Management." Each risk is managed by the ESG Management Committee under the supervision of the CEO, and key risks and response measures are reported to the Board of Directors. Climate change-related risks are also integrated into this comprehensive risk management process and managed through the following detailed processes.

(Direct Operation)

We listen to VOC (Voice of Customer) to reflect customers' opinions in all areas of business such as marketing, quality, R&D, and establishes a strategy by identifying risks and opportunities for financial impact by identifying market trends such as demand for eco-friendly materials and low-carbon product development, identifying customer core needs, and market trends. To reflect customer orientation, we have established a risk and opportunity strategy with information registered in the G-VOC (Global VOC) system through C-Cube Activities (VOC). The C-Cube activities are carried out in five stages: data collection, analysis, sharing, execution, and result management, and Customer Contact Department registers the customer opinion in system. Then all collected information can be voluntarily checked by the associated department. In other words, the G-VOC system collects and shares analyzed information on issues for each enterprise project, including risks and opportunity factors caused by climate change. And then the decision which based on the contents reported by each business sector is made by reporting to the CEO and the board of directors more than once a year (greater than or equal to twice in a year) after a materiality assessment of the ESG management team. If a budget is required at the implementation and outcome stage in response to crises and opportunities, the required budget is reflected in the annual financial plan. If an additional budget is required, it is approved separately through arbitrary resolution in accordance with the internal decision-making entrustment regulations, and it is determined according to the size of the required budget. After a resolution by the Performance Unit and the Performance Group, KRW 1 to 500 million is decided by the CEO and more than KRW 1 billion is decided by the board of directors. The process of identification and evaluation is common to both short, mid and long term. As a short-term use of the corresponding process, there is a case of checking customer feedback in real time by sharing the information collected by the operation of the G-VOC system to the company. As the market demand for eco-friendly devices increases, 170kV eco-friendly Gas Insulated Switchgear was developed independently to replace SF6 gas used in the switchgear breaker process with eco-friendly Novec Mixture in 2021. It is expected that there will be a reduction effect of about 98% of GHG generation (23,900kgCO2/kgSFG → 500kgCO2/kg-Novec Mixture). And 60 remote tests were conducted in 2022 by conducting a remote admission factory acceptance test (RFAT) in which customers can directly check the process and result of test producing heavy electric products. In addition, as a mid- to long-term example of creating opportunity factors using customer VOC, we are creating new demand in the market by developing differentiated products that can meet customer needs through systematic VOC management.

(Upstream)

The main targets of upstream risk evaluation at Hyosung Heavy Industries are raw material partners for major production products such as transformers and circuit breakers etc. The risks associated with raw material suppliers can directly affect us. Therefore, upstream risks are included in the comprehensive management process. In the short to medium term, the purchasing team and relevant departments collaborate to identify and evaluate potential risks throughout the supplier selection and monitoring processes, minimizing negative impacts. For example, an increase in extreme weather events due to climate change becomes a factor for stable raw material supply from suppliers. Furthermore, we conduct annual ESG management diagnostics and education for suppliers to reduce risks associated with suppliers in the long term and provide them with opportunities to assess their own sustainability. For instance, we conduct an evaluation on suppliers every year which ESG self-diagnostics evaluation is involved, inducing ESG activities of partners. And ESG behavior norms are reflected in contracts with excellent partners. The result of evaluation on suppliers are reported to the ESG Management Promotion Committee more than once a year (greater than or equal to twice in a year).

(Downstream)

The main targets of downstream risk evaluation at Hyosung Heavy Industries are major customers who purchase our main products such as transformers, circuit breakers and hydrogen charging systems, etc. Since producing and developing products that meet customer needs directly impacts the company's revenue, downstream risks are included in the comprehensive risk management process. Particularly, due to ongoing climate change and changes in consumer behavior, customers demand continuous disclosure of climate-related information from us, along with the use of environmentally friendly materials. GHG reduction in the production process, and low-carbon product development. In the short term, we respond to these customer information requests, and in the medium to long term, promote the development of environmentally friendly technologies. For example, regarding hydrogen gas, we oversee hydrogen production infrastructure among value chains and promote it as one of our new growth engines from 2020, such as supplying gaseous hydrogen charging systems to expand supply of hydrogen fuel cell vehicles and commercial hydrogen vehicles. With hydrogen cars attracting attention as future eco-friendly cars, the hydrogen charging station market is expected to grow high and is expected to grow to 2.5 trillion dollars (KRW 2,940 trillion) in 2050 global standards. In relation to customers' requests for information on climate change, our activities such as CDP response, sustainable management report preparation, and eco-friendly technology development are reported more than once a year (greater than or equal to twice in a year) to the ESG Management Promotion Committee to make decisions.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

Relevance & inclusion	Please explain

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	[Explanation of current regulation-Emissions Trading System] Hyosung Co. has been participating in Korea ETS since 2015 and is subject to mandatory reporting of its GHGs emissions each year. As Hyosung Corporation's group division proceeded in 2018, Hyosung Heavy Industries was launched and began to be operated separately. Accordingly, emissions included only to Hyosung Heavy Industries from 2014 to 2017 were separately reported to the government, and emission permits are currently managed according to the allocation for the third commitment period (2021-2025). Green management policy of Hyosung Heavy Industries considers GHGs regulation and emissions reduction as top priority. Complying with the government's GHGs regulations, Hyosung Heavy Industries has reported the emissions after external third party verification, managed allowances, implanted implemented reduction activities and purchased emissions allowances accordingly. And the operation costs of such management are included in the annual budget. The government currently is discussing allocation criteria for the third commitment period (2021-2025) and requires continued reduction of GHGs in the industrial sector. As the management over GHGs regulations is intensifies, the operating costs will increase, which may be a financial risk for Hyosung Heavy Industries. To minimize risks from the ETS system, Hyosung Heavy Industries calculated expected emissions during the third commitment period and analyzed the surplus or deficient amount each year and the financial impacts thereof. In the pursuit of continuous emissions reduction and response to the regulations, the company is discovering and implementing various internal and external reduction activities, while applying for additional allocation, if necessary, in accordance with the requirements for changes in our production sites.
Emerging regulation	Relevant, sometimes included	[Explanation of Emerging regulation - Requirements for environment-related product certification from major customers] As the problem of climate change becomes visible, environmental regulations in the global market are gradually strengthening. Power devices exported by Hyosung Heavy Industries are necessary products for substations or power plants, and operators will be selected through PQ(Pre-Qualification) when winning domestic and overseas projects. Recently, as countries such as domestic, Europe and the United States have added climate change to their PQ evaluation, demands for disclosure of climate change information such as request for disclosure of ESG information, CDP, carbon footprint certification, and Ecovadis are increasing. In particular, state-owned petrochemical companies such as the Power Authority, National Grid, UAE Atomic Energy Agency, Oil Gas Market, SHELL in the UK, TOTAL in France, AZPROM in Russia, and oil refineries are demanding carbon emissions, recycling ratios, and external HSE (health, safety, environment) activities. Hyosung Heavy Industries, which has a large proportion of overseas sales, can expect disadvantages in selecting bid participants and restrictions on bidding for large PJTs if it fails to respond appropriately to customer demands, which can cause a decrease in sales. As a result, as regulations such as the EU or customer's requirements increase, it can act as a new trade barrier, and if it is not properly responded, it can lead to a drop in sales. Therefore, Hyosung Heavy Industries is carrying out climate change response activities such as publishing CDP reports to respond to requests from customers to disclose climate change information. We conduct KCGS evaluations every year and publish sustainable management reports in order to respond to the demands of domestic customers as well.
Technology	Relevant, always included	[Explanation of technology - Green Products R&D] Customers' demand for eco-friendly products and eco-friendly materials is increasing worldwide, and interest in eco-friendly consumption and value-oriented consumption is also increasing. In order to respond to these market changes and satisfy of customer needs, it is necessary to change to eco-friendly products through continuous R&D. As the global market demands for eco-friendly devices capable of reducing harmful substances and biodegradable devices increase, Hyosung Heavy Industries is taking the lead in developing eco-friendly products that convert insulation of power devices such as transformers and circuit breakers. Eco-friendly transformers use eco-friendly biodegradable ester oil instead of existing mineral oil, and we are responding to eco-friendly supply through the development of transformers and expansion of line-ups. As of 2022, 48 ester-filled transformers were ordered and we sold four products, and research and development is continuously being promoted to stabilize and improve performance. In 2021, 170kV eco-friendly GIS (Gas Insulated Switchgear) was developed independently to replace SF6 gas used in the breaker process switchgear with eco-friendly Novec Mixture. It is expected that there will be a reduction effect of about 98% of GHG generation (23,900kgCO2/kgSFG → 500kgCO2/kg-Novec Mixture). Hyosung Heavy Industries recorded KRW 640.1 billion in sales of eco-friendly products and services by integrating the heavy industry and construction sectors in 2022 and we are continuously conducting R&D to produce more environmentally friendly products through leading technology in the power device market such as eco-friendly transformers and circuit breakers.
Legal	Relevant, always included	[Explanation of Legal -Emissions Trading System] The Korean GHG ETS (Emissions Trading System) has been implemented according to 'Act On The Allocation And Trading Of Greenhouse-gas Emission Permits', Hyosung Heavy Industries has been a subject company since 2018 and has an obligation to report annually its GHG emissions. A fine of more than KRW 10 million will be imposed depending on each case if the emissions report is omitted or not submitted, and problematic (Article 43 of Act On The Allocation And Trading Of Greenhouse-gas Emission Permits) and when calculating allocation, the competent authority may impose a penalty surcharge not exceeding three times the average market price of emission permits for the pertinent compliance year on the business entity within the maximum KRW 100,000 per ton of carbon dioxide for the shortfall. (Article 33 of Act On The Allocation And Trading Of Greenhouse-gas Emission Permits). In addition, for all climate change related lawsuits, decision-making responsibilities and authorization are imposed in accordance with the internal decision-making delegation regulations. In particular, for cases that cost more than KRW 300 million or the compensation after agreement is more than KRW 100 million, the final approval will be made at the level of the CEO or higher. All types of climate change related lawsuits could directly cause financial losses, but also, they may lead to sales loss with new risks of increasingly negative reputation from stakeholders inside and outside Regarding major businesses of Hyosung Heavy Industries, risks are identified and evaluated in advance according to internal investment review procedures, and the Legal Compliance Team who conducts legal reviews if necessary.
Market	Relevant, sometimes included	[Explanation of market – A change in consumer preferences] Customers' behavior change may become a major risk factor to the market, while customer companies demand Hyosung Heavy Industries, an end product manufacturer, for using eco-friendly equipment, hazardous substance reduction in the product production and low carbon products according to market trends. Therefore, in order to specify changing market situations and needs, Hyosung Heavy Industries does systemic management of VOC and various communication activities. Internally, a regular meeting runs to discuss VOC professionally, and it creates new demands reflecting customers' needs through this. A development and introduction of eco-friendly electric power equipment and hydrogen charging station is the case using the customer's VOC in the development of a new product. This is one of the new growth engines of Hyosung Heavy Industries and the demands increase due to the demand for eco-friendly materials in the market, growth in the number of hydrogen cars, and the prospect for hydrogen energy conversion. Hyosung Heavy Industries is in charge of the supply infrastructure for hydrogen charging and implements it as one of the new growth engines. As the hydrogen fueled car engages the attention as an eco-friendly one in the future, the market for hydrogen charging is expected to grow highly and the volume is prospect to be US\$ 2.5 trillion (KRW 2,940 trillion) in the world. As of the end of April 2022, we supplied 30 of the 121 hydrogen charging stations operating nationwide, and it is expected that additional orders such as gas and liquefied hydrogen charging stations will be active in the future as the government plans to expand the hydrogen charging station infrastructure. In addition, Hyosung Heavy Industries, along with Linde Korea, is building the world's largest liquefied hydrogen plant at 13,000 tons per year on the site of Ulsan's Yongyeon plant which was completed at the end of 2022 and will be in full operation from January 2024. When the liquefied hydrogen plant is in full operation, 10,950 tons of liquefied hydrogen will be produced annually, and it plans to supply liquefied hydrogen for mobility after the completion of the liquefied hydrogen charging station in February 2024.
Reputation	Relevant, sometimes included	[Explanation of reputation – Stakeholders' Demand for Climate Change Information] Hyosung Heavy Industries mostly deals with large global companies as the major customers, and they require the information disclosure on sustainability management as well as on climate change in accordance with international standards. Hyosung Heavy Industries annually identifies the issues of increasing request for information on responses to climate change and supply of eco-friendly products and conducts response activities not to bring about negative risks on its reputation through active measures. As the responses to global customer companies' request grow, the request for checking the entire CSR assessment items as well as the information about the responses to climate change increases. Hyosung Heavy Industries conducted carbon footprint certification for two UHV transformers and circuit breakers in 2021 and disclosed carbon information in 2022. In addition, as National Grid, a major customer company, asked Hyosung Heavy Industries to participate in the CDP supply chain program and we began to respond to the program from the CDP report 2021, this report. Hyosung Heavy Industries annually publishes the sustainability report while voluntarily participating in the CDP CC program.
Acute physical	Relevant, sometimes included	[Explanation of acute physical - Physical risks such as precipitation, typhoons, etc] As the frequency of heavy rainfall and typhoon increases due to the accelerating climate change, we consider the possibility of losses to physical assets in local workplaces as risks. Loss in production facilities may bring about certain problems our operation and could cause losses in assets due to decrease in sales from lower production efficiency. In addition, in case of circuit breakers with plenty exports, the delay in production or production suspension due to inundation may cause additional loss in revenue of products. With the increasing frequency of heavy rainfall and typhoon due to climate change, we annually conduct the regular preliminary facility inspection in Changwon Plant to minimize the impact on its asset loss. In 2017, Changwon Plant partially experienced flood damage to the plant. Then Changwon Plant analyzed the localized heavy rainfall to be a physical risk factor needing preemptive responses so that it invested approximately KRW 111 million in the installation of water stops at the entrance, waterproof construction, bumpers to prevent the short-term inundation and emergent water pumps and completed them. Typhoon No. 11 "HINNAMNO" moved northward to South Korea in August 2022, causing a lot of damage, including human casualties and flooding of agricultural land. We also conducted inspections of factory excellent drainage pipes, sewage pipes, and underground water tanks in 2022 in preparation for serious damage such as flooding of major facilities and construction sites in the factory by Typhoon "HINNAMNO". In 2021, a water shield was installed to carry out preliminary simulation activities. In addition, we conducted a safety inspection for safety in the factory and the stability verification of major facilities due to changes in the physical environment. In the construction sector, the typhoon caused a total of KRW 102 million in damage, including leakage of walls of buildings adjacent to the site in Cheongdam-dong, Seoul, and damage to the first-floor structure and adjacent roads due to the flooding of waves in Minrak-dong, Busan in 2022. The physical risk can cause enormous damage to the transcriptional business. In addition, Hyosung Heavy Industries inspects domestic factories three times a year in February, July and November, establishes and implements necessary measures according to the results of the inspection.
Chronic physical	Relevant, sometimes included	[Explanation of Chronic physical - Increased operating costs due to increased average temperature] The increase in the average temperature or cold waves is one of the change factors in the long-term physical environment and it directly linked to our heating and cooling systems in plants. So it becomes the increasing factor in operating costs. In case of Hyosung Heavy Industries mainly manufacturing electric power equipment, cooling or heating systems are runned in the plants in order to maintain at a certain temperature of average 25 ~ 30°C to keep a desirable quality of product, so that outside situation as extraordinary cold weather and intense heat may directly lead to increase in the heating or cooling time. As the heating or cooling time increases, the cost of electricity and city gas increases. Especially in the summer season, when the power supply is cut off in the area where plants are located due to the increasing electricity usage, extra losses may occur due to production disruptions and product defects. In 2022, a record heat wave caused a prolonged high temperature phenomenon so Hyosung Heavy Industries spent about KRW 14,854 million equivalent to 0.57% of sales, for the total annual electricity use cost of all its businesses. In the future, if the average temperature changes due to climate change increase, operating costs are also expected to increase.

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 & Primary climate-related risk driver

Current regulation	Carbon pricing mechanisms
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Primary potential financial impact

Increased direct costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Hyosung Heavy Industries' direct operation is located in Korea and has been incorporated into the business entities eligible for allocation of the emissions trading system since 2018 to achieve the national GHG reduction target (40% reduction compared to 2018 by 2030). The emissions trading system is a system in which emissions are allocated and released within the allocated emissions every year, and there is a cost risk of purchasing additional GHG emissions right from the market if the emission exceeds the allocated GHG emissions right. In addition, in the case of the third commitment period (2021-2025), the ratio allocated gratuitously is 90% and the continuously increasing operating costs and liabilities also exist as climate change risk factors. Most of the total GHG emissions (76% of the total emissions) from the headquarters, Changwon 1-4 plants, Sejong plant of heavy industry division, construction sites of construction division and six other operation sites are generated from facilities in the plant. And because electricity is used, energy source reduction potential is lower than that of other industries. As we are conducting the active new business investment and development, according to the sales of separate financial statements in business report of Hyosung Heavy Industries, our sales were increased slightly by 9.9% compared to 2021 to about KRW 1,731 billion for Heavy Industries and KRW 830 billion for construction. (increased from KRW 2,332 billion in 2021 to KRW 2,561 billion in 2022). In addition, sales are expected to increase to KRW 3,757 billion in 2023 due to continuous business development, which is expected to increase 22.6% compared to 2021. If we fail to response actively to the climate crisis, it could lead to serious financial debt in the worst case. Therefore, the emissions trading system is classified as a serious risk and reported to the ESG Management Promotion Committee through continuous monitoring every year.

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)

4375030000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Hyosung Heavy Industries calculated the financial impact assuming an 'increase in direct costs' for purchasing additional allowance through the prediction of GHG emissions and shortage of allowance during the third planning period, which are the current regulations directly affecting the operation of its facilities. The emission permits are expected to be insufficient due to the expectation of increased emissions according to business progress such as eco-friendly transformers and expansion of SGM test facilities (KRW 3.5 billion in investment). Currently, Hyosung Heavy Industries is implementing the emissions trading system during the third commitment period, but if growth and development continue, a shortage of emission permits is expected during the fourth commitment period (2026-2030). The expected gratuitous allocation for emission permits during the fourth commitment period is 245,980 tons, but the expected emission for the same period is 387,110 tons, so if there is no reduction activity, the insufficient emission is expected to be a total of 141,130 tons. In this case, it is estimated that the internal debt cost of purchasing emission permits during the entire fourth commitment period is about KRW4,375,030,000(141,130 tons* KRW31,000(based on the internal carbon price)).

Cost of response to risk

156787000

Description of response and explanation of cost calculation

(S) Situation: Hyosung Heavy Industries expects the financial impact on increased GHG emissions and the purchase of additional emission rights exceeding the emission trading system quota.

(T) Task: Therefore, Hyosung Heavy Industries should carry out equipment replacement and energy efficiency activities to reduce GHG emission in the long term. We should conduct the third-party verification to calculate the emissions accurately as well and submit the 2022 result to government.

(A) Action: Hyosung Heavy Industries conducted investment activities for verification of emission and GHG reduction in 2022. The costs are KRW 15.287 million for the third-party verification and KRW 141 million for reduction of GHG etc.

(R) Result: Hyosung Heavy Industries carried out the activities for GHG reduction such as replacing air conditioners/heater at the circuit breaker plant and transformer body assembly sector in 2022 to minimize the risk of an emission shortage of allowances owned. The result of the investment, we reduced the GHG emissions by 134.4 tons by

reducing electricity use by 292.6 MWh per year.

Description on management cost calculation: The total cost used to identify emissions in 2022 and to prepare for the risk of emissions shortage is KRW 156,787,000, which is the sum of each activity below.

- Third Party Verification of Emission Report (February to April 2022): KRW 15,287,000

- Annual Fee of Korea Exchange: KRW 500,000

- Investment costs for GHG reduction activities (February-June 2022): KRW 141,000,000(KRW 46 million for air conditioner at circuit breaker plant+ KRW 95 million for air conditioner for transformer body assembly board)

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Emerging regulation	Mandates on and regulation of existing products and services
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Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

The products that account for an important portion of Hyosung Heavy Industries' domestic and overseas sales are circuit breakers and transformers(major products) in the heavy industry business sector. Power devices exported by Hyosung Heavy Industries are necessary products for substations or power plants, and operators will be selected through PQ(Pre-Qualification) when winning domestic and overseas projects. Recently, as the relevant country such as domestic, EU and United States add the climate change content in the assessment items of PQ, the request for the information disclosure on such as CDP, carbon footprint certification and EcoVadis increasingly grows. In particular state-owned petrochemical companies such as UK's SHELL, France's TOTAL and Russia's GAZPROM demand for carbon emission, recycling rate, and external HSE (health, safety, environment) activities are becoming more active. Hyosung Heavy Industries is a company with a large proportion of overseas sales, we have various global companies. In particular, we sell UHV transformers products to SEPON POWER, Satnett Orskog, ATOZ CO., Ltd., HICO AMERICA SALES & TECHNOLOGY, INC, and National Grid. In addition, as it is actively engaged in global markets such as the U.S. and Europe to sell products such as transformers and circuit breakers. Our domestic customers are Samsung Electronics Co., Ltd, Korea Electric Power Corporation, and Pohang Iron and Steel Co., Ltd etc, and they are requesting us to disclose ESG information. If we fail to properly respond to customers' demands, it is possible to expect disadvantages in selecting bidding participants and restrictions on bidding for large projects, which may cause a decrease in sales.

Time horizon

Medium-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)

564600000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Hyosung Heavy Industries calculated the financial impact on the assumption. If fails to provide environmental information such as request for disclosure of ESG information and EcoVadis or CDP requested by customers due to new regulations affecting product delivery to downstream customers, our sales will drop with decrease in demand from customer. The order amount for overseas in Heavy industrial business was KRW 1,203.7 billion of which European orders totaled KRW 238.7 billion, accounting for about 20% of its total overseas exports. In addition, a mount of orders received from the National Grid in UK, our main overseas customer, accounts for about 37.16% of the total European orders. If we fail to properly respond to CDP information disclosure requests required by National Grid and are unable to deliver transformer products, the potential financial impact as of 2022 is KRW 88,700,000,000 (KRW 238.7 billion(Total European orders) * about 37.16% (National Grid order ratio)). In addition, our domestic performance is KRW 2,079.1billion in 2022. And sales of Samsung Electronics Co., Ltd and Korea Electric Power Corporation which our major customer account for about 22.89% of them. If we fail to properly respond to request for disclosure of ESG information required by them and are unable to deliver our products, it will be caused the decreased sales. In that case, the risk that we will face, that is, the potential financial impact is expected to be KRW 475,900,000,000. (KRW 2,079.1 billion(Total domestic orders) * about 22.89% (Samsung and KEPCO order ratio)). Therefore, the total pf potential financial impact will be KRW 564,600,000,000(88,700,000,000+475,900,000,000). We consider the request for the information disclosure on responses to climate change added to PQ from globally major customer companies a crucial issue so that it copes with it with first priority.

Cost of response to risk

69100000

Description of response and explanation of cost calculation

(S) Situation: National Grid, a major customer of Hyosung Heavy Industries, requires us to report CDP every year, so we respond to their needs first by submitting CDP reports every year. And domestic customers request ESG information disclosure every year, so we respond to these demands every year.

(T) Task: The CDP report should report on the company's sustainable goals and actions on climate change issue, corporate governance, GHG reduction goals. Therefore, we carry out the activities such as reporting of CDP report, the third-party verification of Scope3 and preparing and verifying sustainable management reports as well. Regarding ESG public information requests, we conduct KCGS evaluation every year and publish sustainable management reports.

(A) Action: Hyosung Heavy Industries spent KRW 38 million for CDP consulting, KRW 2.5 million for third-party verification of Scope3, and KRW 28.6 million for consulting

on sustainable management reports and verification in 2022.(No cost for KCGS evaluation)

(R) Result: As a result of responding to CDP through vigorous activities, we could receive an A- grade from Climate Change and received the 'Carbon Management Sector Honors'. In addition, Our ESG management promotion performance was publicly shared with customers through a sustainable management report.

Description on management cost calculation: The total cost used to prepare for response to customer requirements in 2022 is KRW 69,100,000 and the corresponding value is the sum of each activity below.

- CDP Participation and Consulting (April-July 2022): KRW 38,000,000
- The third-party verification of Scope3 (June-July 2022): KRW 2,500,000
- Sustainable management reporting and verification (January to December 2022): KRW 28,600,000

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Other, please specify (Increased severity and frequency of extreme weather events such as cyclones and floods)
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Primary potential financial impact

Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

The frequency of torrential rains and typhoons is increasing around the summer season due to the influence of climate change. Hyosung Heavy Industries, which has a business in Korea, can cause facility loss and product flooding due to flooding of power devices such as transformers and circuit breakers, which are the main products of the heavy industry, and can cause damage to facility operation, and this can lead to additional sales loss. Our headquarters, Changwon Plant, and all other workplaces minimize the impact that can cause losses on assets through preliminary facility inspections every year. In particular, the Changwon plant analyzed torrential rain as a physical risk factor that needed priority response in 2022 and completed the activities such as maintenance of clean sewage and sump pump, cleaning of underground water tank, cleaning of dregs on sewage pipe, sump pump and rainwater pipe, and construction of main rainwater pipe. According to the inspection results, we are establishing and implementing the necessary measures such as water leakage supplementation. And the typhoon "HINNAMNO" came to South Korea in August 2022, it caused a total of KRW 102 million in damage, including leakage of walls of buildings adjacent to the site in Cheongdam-dong, Seoul, and damage to the first-floor structure and adjacent roads due to the flooding of waves in Minrak-dong, Busan in the construction sector.

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)

36639000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Hyosung Heavy Industries has calculated the financial impact of domestic direct business assuming a decrease in sales if we fail to properly respond to typhoons and flooding, which are short-term physical environmental changes. The assumption is that our sales drop by causing product damage due to flooding caused by typhoons. If we fail to respond the typhoon "HINNAMNO," which moved north in August 2022, properly, there is a risk of damage or loss of major power devices and construction site materials installed at the site of Hyosung Heavy Industries' plant. In addition, there is a risk of losing customers due to instability in product quality. Therefore, Hyosung Heavy Industries conducts regular inspections three times a year in every February (the thawing season), July (the rainy season), and November (the winter season) to prevent damage caused by climate change abnormalities in all domestic business in Korea. However, if it is not properly responded, the heavy industry sector is expected to lose more than KRW 34,639 million based on product sales of KRW 1,731,959 million in 2022 assuming that 2% of major facilities are damaged. In the case of construction sites, each site has insurance, which pay the max KRW 30 million for self-burden and receives 100% of the remaining damage when occurs the event of natural disasters such as floods and typhoons. The amount of damage caused by past typhoons (Typhoon Maemi) is set as the expected amount of damage for insurance application, which is set at KRW 2,000 million. As such, the occurrence of changes in the physical environment can cause enormous financial damage within the company. As a result, a total of KRW 36,639,000,000 (KRW 34,639 million + KRW 2,000 million) in relation to the expected damage in the heavy industry and the maximum damage in the construction sector is expected.

Cost of response to risk

359350000

Description of response and explanation of cost calculation

(S) Situation: Hyosung Heavy Industries is exposed to abnormal climate caused by climate change, that is, flooding damage at domestic workplaces caused by typhoons and floods.

(T) Task: Therefore, we need to manage physical risks at each workplace to prepare for physical environmental changes such as typhoons, floods, power outages, and flooding.

(A) Action: We conduct regular inspections total three times in every February (the thawing season), July (the rainy season), and November (the winter season) to prevent damage caused by climate change abnormalities (heavy rain, heat waves, heavy snow, and floods). In the case of the heavy industry business sector, safety inspections by specialized institutions are conducted once/two years to verify the stability of major facilities due to changes in the physical environment, and safety inspections are

conducted using external specialized institutions for safety in the factory.

(R) Result: We expect this investment to prevent future damage from physical risks. In 2022, the above-mentioned safety inspection, preliminary simulation activities were conducted to prepare for typhoons and floods, and the installation of a water shield was carried out. In addition, in preparation for typhoons and floods, inspection and management of rainwater pipes, sewage pipes, and underground water tanks in the factory were conducted. And we installed an average of 10 pumps at 26 construction sites in preparation for the rainy season or flood in summer.

Description on management cost calculation: The total cost used to prepare for the response to physical environmental changes in 2022 is KRW 359,350,000, and the corresponding value is the sum of each activity below.

- Major Facility Stability Verification (one-time per 2 year): KRW 5,430,000
- Safety inspection through external specialized institutions (one-time per 1 year): KRW 120,000,000
- The management agency for clean sewage tank and sump pump (January to December 2022): KRW 18,720,000
- Cleaning of underground water tank(January to December 2022): KRW 22,600,000
- Cleaning of dregs on sewage pipe, sump pump(January to December 2022): KRW 54,100,000
- Cleaning of dregs on rainwater pipe(June 2022): KRW 37,200,000
- Construction of replacement work in preparation for flooding on main rainwater pipe(February and August 2022): KRW 68,800,000
- Installation of 10 pumps(January to December 2022): KRW 32,500,000 (average unit price of KRW 1,250,000*26units)

Comment

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Major advanced countries and corporates participate in so-called Net Zero Alliance and Carbon Neutrality Alliance in order to respond to global climate change crisis. Carbon neutrality needs the development of electrical grid system to link the development of the new renewable energy industry and the existing energy industry. Heavy industry sector is the leading company of electric power equipment such as transformers and circuit breakers which are key devices in the power transmission and distribution networks and leads the development and supply of eco-friendly products using eco-friendly materials as the insulators of electric power equipment. In case of transformers, they are filled with Ester Oil instead of the existing Mineral Oil to eliminate the risk of environmental pollution (biodegradability) and have some characteristics like the following: safety against fire, moisture proof, and excellent degradation. Hyosung Heavy Industries supplies the eco-friendly insulating oil transformers with those characteristics all over the world including Europe and the Middle East. Hyosung Heavy Industries has also completed its independent development of 170kV eco-friendly GIS (Gas Insulated Switchgear opening and closing device) replacing SF6 gas used in the breaker process switchgear with eco-friendly Novec Mixture in 2021. And we expect about 98% of GHG generation reduction effect (23,900kgCO2/kg SFG→500kgCO2/kg-Novec Mixture). Hyosung Heavy Industries, which is focusing on developing eco-friendly products in line with global market trends, is also continuing to develop eco-friendly GIS. In 2022, we are focusing on developing various eco-friendly products, such as developing eco-friendly GIS that uses dry air (composed of only nitrogen and oxygen) with zero of GWP as an insulating medium. As GIS is eco-friendly product, it is expected to have a positive impact on sales by selling it to global markets.

Time horizon

Medium-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)

6510000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We are expanding the scope of development on low-carbon products and services through the development of vegetable-based transformers and eco-friendly GIS (gas insulation switchgear) in relation to products and services produced and delivered directly at its operating sites. We are steadily developing eco-friendly products to realize

carbon neutrality, so the financial impact was calculated on the assumption of increased sales due to the introduction of new products. We signed a long-term contract with the British Electric Power Agency to supply the vegetable-based transformers in 2019 and will deliver 40 units of 33kv 60MVA plant-based transformers by 2025 and the Unit 1 was sold in 2023 already. The supplied transformers will be used for ESS and electric vehicle charging stations. In addition, the independent development of 170kV eco-friendly GIS that replaces SF6 gas used in the breaker process with eco-friendly Novec Mixture was completed in 2021. As GIS is eco-friendly product, it is expected to have a positive impact on sales by selling it to global markets. As the performance of operating units suitable for eco-friendly products is improved as well, it is expected to lead GHG reduction activities in the domestic market. We have a plan to develop 145kV eco-friendly GIS for the global market by utilizing vacuum interrupter (VI) + Dry Air, which does not emit any GHG by December 2023, and expect to expand its eco-friendly portfolio. We are continuously carrying out R&D of eco-friendly products internally and is striving to increase the production of eco-friendly products. The sales on our transformer are increased by 58% to KRW 2,053 million in 2022 from KRW 1,300 million in 2021. We expect the sales to reach about KRW 29,000 million in 2026 as the best target scenario, assuming sales eco-friendly transformers increase by more than 50% every year and eco-friendly products continue to be developed. There are no sales yet as eco-friendly GIS products are under development in 2022, but if eco-friendly products are continuously developed and sold in the future, it is expected to continue to rise by more than 452% every year. Accordingly, assuming sales in 2021 will increase by more than 452% every year based on KRW 700 million, a total of KRW 36,100 million is expected to be generated by 2026 based on combined sales at domestic and abroad. Therefore, it is expected that a total of KRW 65,100,000,000(KRW 29,000 million+KRW 36,100 million) will be generated.

Cost to realize opportunity

10593523965

Strategy to realize opportunity and explanation of cost calculation

(S) Situation: While global companies are actively participating in the alliance for Net Zero and carbon neutrality, Hyosung Heavy Industries is supplying the eco-friendly products and services to advanced and global companies and continues to develop related technologies

(T) Task: Therefore, we need to continuously research, develop, and expand on eco-friendly products and services. We need to conduct a Life Cycle Assessment evaluation of major eco-friendly sales products in order to reduce GHG, emission identification must be advanced as well.

(A) Action: We invested KRW 354,851,020 for eco-friendly transformer R&D in 2022 and KRW 9,403,360,251 for eco-friendly GIS R&D as well. In order to continuously develop products and services, KRW 268,269,878 and KRW 537,042,816 were also invested in the development of eco-friendly transformers and the development of eco-friendly DAIS series respectively. And from August to December 2021, a total of KRW 30 million was invested to calculate the entire carbon emission for UHV transformers and circuit breaker products

(R) Result: We continue to invest in R&D to develop eco-friendly products in 2022 and will be expected to increase the sales through the carbon-neutral market when the product R&D is completed. In the case of ester transformers, if production increases due to high demand in the future, additional facilities will also be built. Through the overall evaluation, we were able to evaluate the potential impact of UHV transformers and circuit breakers on the environment, and quantitative confirmation of GHG emissions is a driving force to accelerate customer attraction by disclosing transparent GHG emissions. We also have a plan to expand the number of carbon footprint disclosure products in the future and further consider certification for carbon footprint products in the future, as well as for products that are already developed.

Description on cost to realize opportunity: The total cost used to prepare for the response to physical environmental changes in 2022 is KRW 10,593,523,965, and the corresponding value is the sum of each activity below

- Eco-friendly transformer and GIS R&D (January to December 2022): KRW 9,758,211,271

- Development for eco-friendly insulation oil transformers and DAIS series to enter new markets (North America, etc.) R&D (January to December 2022): KRW 805,312,694

- Life Cycle Assessment consulting on transformes and GIS (August-December 2021): KRW 30,000,000

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Markets

Primary climate-related opportunity driver

Other, please specify (Creating surplus profit by participating in ETS)

Primary potential financial impact

Other, please specify (Creating surplus profit by participating in ETS)

Company-specific description

Hyosung Heavy Industries is business entities eligible for allocation of the emissions trading system since 2018 to achieve the national GHG reduction target (40% reduction from 2018). Business entities eligible for allocation participating in the emissions trading system are allocated with emission permits annually. And they have financial risks if they are allocated and over-emissions of GHGs relative to the allocated emissions, however on the contrary, there are opportunities to sell those emissions and generate additional profits as well. Heavy industry and construction sector in Hyosung Heavy Industries are expected to increase GHG emissions due to continuous business development.

However, as we have the goal of "reducing GHG emissions by 14.5% in 2018 by 2030", emissions are expected to decrease if active GHG reduction projects are carried out in the future.

Assuming that the reduction target is successfully achieved, additional profits from the sale of emission permits of remaining allocation can also be expected if the reduction amount increases further compared to GHG emissions from 2022 to 2030. In fact, the GHG emissions from Changwon Plant 1 of heavy Industries sector from 2019 to 2020 were less than the allocated emissions, so there was no shortage of allowance emission within the second commitment period. In 2022, we have case that 2,860 tons of residual emission permits so among them, 2,800 tons were sold at KRW 13,300 and 60 tons at KRW 11,850, generating a total of KRW 37.95 million in surplus income.

Time horizon

Medium-term

Likelihood

Very 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)

724718000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Hyosung Heavy Industries has calculated the financial impact assuming generation of surplus profits from the sale of emission rights caused by GHG reduction during the third planning period related to domestic emission trading system that may occur at direct operations. Currently, we have calculated expected emissions reflecting the third commitment period allocation result and target reduction rate to achieve the GHG reduction target, and residual emissions are expected to occur if the GHG reduction target is achieved by 2030. The estimated emission amount not reflected in the reduction rate of target from 2021 to 2025 is 304,308 tons, but the expected emission amount reflected in the target reduction rate is 285,285 tons, which is expected to be reduced by a total of 19,023 tons. In addition, the Gratuitous Allocation from 2021 to 2025 is a total of 308,663 tons, which is expected to generate 23,378 tons of remaining emissions compared to the target emission. Therefore, the generated internally expected revenue during the third commitment period is expected to be KRW 724,718,000 (23,378 tons*KRW31,000) under the assumption that continuous GHG reduction activities are achieved. (KRW31,000 is the internal carbon price of Hyosung Heavy Industries)

Cost to realize opportunity

430787000

Strategy to realize opportunity and explanation of cost calculation

(S) Situation: We are participating as the business entity eligible for allocation during third planned period on domestic emission trading system and applied on allocation of emission permits in August 2020.

(T) Task: We need to maximize allocation of emission permits and effort for reducing the GHG to take advantage of the opportunity of selling surplus emissions.

(A) Action: We conducted the allocation of the third planning period in 2020 (strategic analysis of revised allocation guidelines and application for GHG reduction results).

We report the statement on GHG emissions & a plan for calculating GHG emissions and conduct the external third party verification every year as well. It is necessary to carry out equipment replacement and energy efficiency activities to reduce GHG. Therefore, we conducted reduction activities with an investment of KRW 129 million, such as replacing air conditioners in the breaker factory and the transformer body assembly board in 2022. And also we have plans to invest a total of KRW 274 million from 2022 to 2023, replacing low-nox gas burners at Changwon 3rd plant, replacing 200tons of continuous melting furnaces, converting casting processes (7,111tons), replacing belt optimization design (48.7tons), and installing heat exchangers in low-voltage motors(125.4tons).

(R) Result: We reported a total of 51,832tonCO2eq of emissions to government through statement on GHG emissions self-written for emission trading system during February-December 2022 and the emissions were verified by external third party. We were able to reduce 134.4tons on GHG emissions and 292.6MWh on electricity use through the air conditioner replacement activity conducted in 2022. Furthermore, we are going to reduce them by more than 7,285.1tons through the planned savings between 2022 and 2023 as well.

Description on cost to realize opportunity: The total cost is KRW 430.787 million, and the corresponding value is the sum of each activity below.

- The verification of external third party for reporting emissions (February to April 2022): KRW 15,287,000
- Annual Fee of Korea Exchange: KRW 500,000
- Completed investment for reduction activities (February-June 2022): KRW 141,000,000(KRW46 million for circuit breaker factory + KRW 95 million for transformer body assembly board)
- Planned investment for reduction activities (2022-2023): KRW 274,000,000

Comment**Identifier**

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new markets

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

Major advanced countries and corporates participate in so-called Net Zero Alliance and Carbon Neutrality Alliance in order to respond to global climate change crisis. It is also expected that the ESS market grows speedily through the systematic linkage of various renewable power sources by trends of energy conversion and the enhancement of carbon neutrality alliance and the reinforcement of electrical grid stability by the expansion of small distributed power. Heavy industry business sector in Hyosung Heavy Industries is also actively responding to market changes caused by the climate crisis in line with this market trend. We have not only strengthened its position as the No. 1 company in the domestic market share of existing UHV transformers and circuit breakers but has also been continuously pushing for development of ESS since 2013. As the leading ESS company, it supplies versatile ESS like the following: linkage of new renewable energy, amplitude modulation, peak power reduction and independent microgrid. Our ESS consists of ES PCS with high efficiency and high reliability, PMS applicable to various applications, and batteries with the optimal capacity and performance and provides customized ESS consulting and system construction. It also provides solutions through the self-produced Stacom (Static Synchronous Compensator) and solution provider, a new renewable power system using ESS. The order amount in the U.S. market in 2021 is expected to increase from KRW 24.1 billion to KRW 65 billion from 2021 to 2026, and in the case of the British ESS market, it is expected to increase from KRW 36.4 billion to KRW 77.6 billion from 2021 to 2026. We are also speeding up its entry into the ESS business market in Africa, where has difficulty in supplying power compared to advanced countries, and we are looking forward to expanding the ESS market in Africa as well.

Time horizon

Medium-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)

336532563896

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The ESS projects are carried out in direct operation sites of Hyosung Heavy Industries. The business for ESS is expanding access to emerging markets. Therefore, it was assumed that sales would increase in consideration of the growth rate of the global ESS business size, and the financial impact was calculated. We are currently conducting the ESS projects in various countries. In September 2020, we got the business KRW 18 billion for building a 50MW ESS in Southampton, UK entered the ESS European market in earnest starting with operation in August 2021. In addition, it achieved a total of KRW 13.6 billion in sales, including 10MW ESS delivery to the U.S. market in 2019, and most recently, in 2022, it won an ESS business worth 170 billion won in South Africa. The generation of renewable energy and the supply on ESS linked to it are expected to increase further as the ESS markets in Europe and the United States are implementing policies aimed at zero carbon emissions. In addition, as South Africa plans to reduce its dependence on coal and expand renewable energy generation, the ESS market is expected to grow further as well. According to a new report by Transparency Market Research, the global ESS market is expected to continue to grow at an average annual rate of 5.6% from 2020 to 2031. If we apply the expected growth rate of the global ESS market to the UK, the U.S. and South Africa, will get the annual sales of about KRW 33 billion, KRW 26 billion, and KRW 278 billion, respectively (the same growth rate on annual average of 5.6% is applied to sales in 2019). Accordingly, we can expect sales to increase by a total of KRW 336,532,563,896 (KRW 32,777,483,337 + KRW 26,152,061,372 + KRW 277,603,019,187) due to its entry into the ESS markets in Europe, the United States, and South Africa.

Cost to realize opportunity

729382660

Strategy to realize opportunity and explanation of cost calculation

(S) Situation: Hyosung Heavy Industries is supplying ESS products to advanced countries and global companies to lead the eco-friendly energy industry, while global companies are actively participating in the alliance for Net Zero, carbon neutrality.

(T) Task: We have conducted actively in the UK and US markets and expanded its ESS business to South Africa in 2022. As the global ESS market is expected to continue to expand, we are going to expand countries and regions that conduct ESS projects in the future. Therefore, R&D research to expand the ESS supply market should also be continuously conducted.

(A) Action: We are continuously conducting research and development to improve service quality for ESS to continue exports to the US, Europe, and Africa markets, and carried out ESS R&D during a year(2022), including development of solar inverter 3MW products and demonstration of hybrid ESS toward PNNL in North America'.

(R) Result: A total of about KRW 54.38 million was invested to secure the safety certification of ESS 3.8MW PCS UL1741, development solar inverter 3MW products and AI-based ESS integrated facility maintenance solutions in 2022.

Description on cost to realize opportunity: The total R&D investment for ESS expansion is KRW 729,382,660 in 2022, and the corresponding value is the sum of each activity below.

- ESS R&D cost (January to December 2022): KRW 54,382,660 (Development of Solar inverter 3MW product R&D cost, etc.)

- Total annual salary for people of ESS research teams (January to December 2022): KRW 675,000,000 (KRW 75,000,000(average annual salary for ESS research teams)*9 (people of ESS research teams)

Comment

C3. Business Strategy

C3.1

(C3.1) Does your organization’s strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan

No, but our strategy has been influenced by climate-related risks and opportunities, and we are developing a climate transition plan within two years

Publicly available climate transition plan

<Not Applicable>

Mechanism by which feedback is collected from shareholders on your climate transition plan

<Not Applicable>

Description of feedback mechanism

<Not Applicable>

Frequency of feedback collection

<Not Applicable>

Attach any relevant documents which detail your climate transition plan (optional)

<Not Applicable>

Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world and any plans to develop one in the future

Hyosung Heavy Industries conducts a semi-annual ESG management promotion committee every year to improve ESG expertise and plans to introduce the low-carbon conversion plan as a resolution at the annual shareholders' meeting within two years. Hyosung Heavy Industries has no conversion plan yet that meets the 1.5°C scenario within the current two years. However, when we establish a management strategy, we use NDCs analysis of the climate change scenario of sincerity. The conversion plan that meets the 1.5°C scenario will be additionally introduced by utilizing with quantitative analysis and qualitative scenario analysis within two years.

Explain why climate-related risks and opportunities have not influenced your strategy

<Not Applicable>

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, quantitative	<Not Applicable>	<Not Applicable>

C3.2a

(C3.2a) Provide details of your organization’s use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios RCP 8.5	Company-wide	<Not Applicable>	<p>[Parameters & assumptions]</p> <p>The physical scenario assumes an expected disaster if efforts to respond to climate change are insufficient and the achievement of reduction targets and strategies fails. Hyosung Heavy industries, headquartered in South Korea, used the RCP 8.5 high-carbon scenario provided by the Korea Meteorological Administration to analyze the physical impact of climate change across the company. The Korea Meteorological Administration calculated future climate change forecast data from 2006 to 2100 according to the IPCC’s RCP scenario after past climate reproduction experiments (1979-2005) based on the Korean Peninsula area. As a result of the analysis, it was confirmed that the global temperature is continuously rising, and the magnitude of the impact on the company may vary depending on the difference in temperature increase. RCP 8.5 assumes that the temperature on the Korean Peninsula will rise 4.7°C by 2100 considering various variables, and RCP 8.5 predicts that the climate index will change, such as a 93.4 days increase (36.5 days → 129.9 days) in Korea and an average precipitation increase of 14% (±12%) compared to the present.</p> <p>[Analysis]</p> <p>Extreme climate change in RCP 8.5 can cause various accidents and problems in business sector of Hyosung Heavy industries, such as property and human damage, loss of products, and deterioration in the quality of products produced. In particular, we should active responses based on scenario analysis as it causes the serious problem, if the heavy industry business sector fails to meet the due date due to product loss, or if problems such as material loss or flooding of construction sites occur in the construction sector. To actively respond to the expected damage under the RCP 8.5 scenario, the company recognized climate change as a major issue and set a goal of reducing greenhouse gases by 14.5% by 2030 compared to 2018 to contribute to curbing global warming. In the future, we will monitor continuous greenhouse gas emissions and national greenhouse gas reduction scenarios, apply them to the establishment of reduction goals for 2030-2050, and actively participate in global greenhouse gas reduction.</p>
Transition scenarios Customized publicly available transition scenario	Company-wide	1.5°C	<p>[Parameters and assumptions]</p> <p>Hyosung Heavy industries intends to analyze the publicly transition scenario of the Republic of Korea, where its business is located, to prevent risks derived from the analysis of physical climate change scenarios and incorporate them into its business strategy. To comply with the NDC reporting obligations under the Paris Agreement and respond to climate change, the Republic of Korea has established the "2030 NDC" and the "2050 Carbon Neutral Scenario" aligning with the 1.5°C scenario presented by the IPCC.</p> <p>The key parameters used in the scenario include population trends, GDP growth rate trends, international oil prices, and industrial structure outlooks, which have been used to project energy demand and greenhouse gas emissions until 2050. It is expected that energy demand will decrease by 5.0% in 2050 compared to 2018 and an increase in energy demand is expected from new technologies such as CCUS and hydrogen. In terms of final energy, consumption of fossil fuels that emit greenhouse gases is expected to decrease significantly, and demand for electricity, renewable energy, and hydrogen is expected to increase significantly. In the case of greenhouse gas emissions, the net emissions in 2050 were set to 0 in the scenario in consideration of energy projections and the introduction of reduction measures.</p> <p>[Analysis]</p> <p>Hyosung Heavy industries analyzed the 2030 NDC and 2050 carbon neutral scenarios in the Republic of Korea. According to the scenarios, the projected energy demand in the industrial sector, to which Hyosung Heavy industries belongs, is expected to be 139.3 million TOE, similar to 148.7 million TOE in 2018. In addition, during the process of achieving carbon neutrality, a significant portion of fossil fuel consumption in the industrial sector is expected to be replaced by electricity, resulting in a projected overall greenhouse gas emissions reduction to 51.1 million tons, an 80.4% reduction compared to 260.5 million tons in 2018.</p> <p>Hyosung Heavy industries also predicted future BAU emissions through regression analysis of factors such as its energy use, sales trends, and economic growth rate, and set the existing target of 14.5% reduction by 2030 compared to 2018 as a company-wide goal. And we plan to achieve its 2050 carbon neutral scenario industry sector goals by analyzing additional scenarios and establishing a transition plan.</p>

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

[Focal Issues that have directed the analysis of climate change scenarios]

In line with the international community's response to climate change, the Korean government first announced "2050 Carbon Neutral" in October 2020, and later declared the "2050 Carbon Neutral Vision" in December 2020. Since then, in December 2021, the government has submitted Korea's raised "2030 National Determined Commitment (NDC)" to the secretariat of the United Nations Framework Convention on Climate Change. Regarding the establishment of the government's GHG reduction target, the government-operated emission trading system is expected to be able to directly link to the 2050 carbon neutral target and be an effective means of implementation in achieving the national GHG reduction target. Accordingly, Hyosung Heavy Industries has established a 2030 GHG reduction target (14.5% reduction in GHG reduction by 2030 compared to 2018) to respond to the 2030 GHG reduction target and emission trading system.

[Reasons for scenario selection to address focal questions]

Hyosung Heavy Industries is obligated to report emissions every year as it has been incorporated as a company subject to the allocation of the emission trading system since 2018. However, the emissions trading system is a system in which emissions are allocated every year, and there is a cost risk of purchasing additional GHG emission permits for shortfalls if Hyosung Heavy Industries has more GHG emissions than the allocated emission rights. The government is concerned to continuously increase the paid allocation ratio (3% for the second commitment period and 10% for the third commitment period) to achieve the raised NDC target (14.5% reduction in 2030 compared to 2018). Therefore, it is expected that Hyosung Heavy Industries will need to solve the problem of insufficient emission permits by achieving the GHG reduction target through low-carbon product development, etc. as it establishes a reduction target in line with the national NDC goal.

Results of the climate-related scenario analysis with respect to the focal questions

The direct operation workplace of Hyosung Heavy Industries is located in South Korea and has the obligation to report and reduce emissions as a company subject to the allocation of the emission trading system since 2018. Currently, Hyosung Heavy Industries is implementing the emission trading system during the third commitment period, but if continuous growth and development proceeds, a shortage of emission permits is expected during the fourth commitment period (2026-2030). The Gratuitous Allocation for emission permits during the fourth planned period is 245,980 tons, but the expected emission for the same period is 387,110 tons, and if there is no reduction activity, the insufficient emission is expected to be a total of 141,130 tons. As a result, it is estimated that the internal debt cost of purchasing emission permits during the entire fourth commitment period is about 141,130 tons * KRW 31,000 (based on the internal carbon price), estimated that a total of KRW 4,375,030,000 will be added. Therefore, Hyosung Heavy Industries has established a goal to reduce GHG in the company at the NDC target level and is carrying out GHG reduction activities to achieve 14.5% reduction compared to 2018 by 2030 and plans to continue its activities from now on. In the first half of 2022, we plan to implement a plan to reduce power usage due to the conversion of casting processes among casting facilities in the heavy industry business division. In the future, by June 2023, we are planning to reduce power consumption through belts of dust collecting facilities and optimized design of poly. Also we are planning to reduce power consumption through measures to reduce power consumption through waste heat recovery by attaching a heat exchanger in a catalytic combustion facility for a low-voltage medium-sized impregnated drying related to a low-voltage motor as well. We sought ways to cope with these key problems through scenario analysis. As a result of continuing reduction activities for greenhouse gas, we sold 2,860 tons of surplus emission rights in 2022, generating a total of KRW 37.95 million (2,800 tons * KRW 13,300) + (60 tons * KRW 11,850). We established a mid- to long-term roadmap for responding to climate change according to the scenario analysis results, and in 2022, it first established a greenhouse gas inventory centered on manufacturing subsidiaries and parent company. By 2025, it aims to expand this effort to include Scope 1 to 3 emissions of major subsidiaries by 2025 to enhance the company-wide greenhouse gas inventory management.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	As hydrogen economy has globally become the important axis in the Green New Deal, Hyosung Heavy Industries has continued the key value chain of the hydrogen economy from 'production to storage, transportation, supply, and use' through the synergy effects mutually created by 4 Hyosung companies. Among them, Hyosung Heavy Industries decided to construct newly a liquid hydrogen plant in plant in Yongyeon of Hyosung Chemical through the investment of KRW 300 billion with cooperation with Linde, a global chemistry group, under the construction plan of a liquid hydrogen plant equivalent to 'production'. Through this investment, the world's largest single-scale liquefied hydrogen plant was built with 13,000 tons, which was completed at the end of 2022 and will be in full operation from January 2024. When the liquefied hydrogen plant is in full operation, 10,950 tons of liquefied hydrogen will be produced annually, and it plans to supply liquefied hydrogen for mobility after the completion of the liquefied hydrogen charging station in February 2024. Hyosung Heavy Industries is in charge of the supply infrastructure for hydrogen charging and implements it as one of the new growth engines. As the hydrogen fueled car engages the attention as an eco-friendly one in the future, the market for hydrogen charging is expected to grow highly and the volume is prospected US\$ 2.5 trillion (KRW 2,940 trillion) in the world.
Supply chain and/or value chain	Yes	Hyosung Heavy Industries is an intermediate material manufacturer with a main product of electric power equipment and needs the joint risk management with subsidiary networks and end product sellers. We annually checks the energy use management and reduction activities through the diagnose of social responsibility management of cooperative companies and gives extra points when assessing the excellent cooperative companies. It reflected the check and guidance of cooperative companies, product carbon certification and the information disclosure on climate change in the related department work and the budget and implements them. As part of green management, it expands the footprint calculation of major product by 2030. Meanwhile, we calculated the certification of carbon emissions for 2 products applied to customer companies and release to provide the information from 2021. In addition, it has responded to CDP supply chain among the information disclosure on climate change requested by customer companies from 2021. We won the "Carbon Management Sector Honors" at the "2022 Carbon Disclosure Project (CDP) Climate Change Response and Water Management Excellent Company Awards" after receiving the CDP Evaluation A- in 2022. Since we are also requested to disclose ESG information and greenhouse gas emissions from domestic customers, it has been voluntarily conducting ESG information disclosure since 2020 after receiving ESG evaluation from the Korea Corporate Governance Service (KCGS). We actively respond to customers' requests for disclosure of ESG information and are strengthening communication with stakeholders about improvements such as disclosure information and disclosure methods. We obtained an A grade in the Korea Corporate Governance Service (KCGS) '2020,2021,2022 ESG Evaluation of Listed Companies', and from 2021, Hyosung Heavy Industries has been established further strengthen company-wide environmental management by establishing the ESG Committee.
Investment in R&D	Yes	Hyosung Heavy Industries consistently implements R&D to secure the new growth engine as well as to enhance the existing business. With the paradigm shift from the current carbon-centered economic structure to a hydrogen-centered economy in the future, we are committed to develop the technology for establishing a value chain that encompasses the installation and operation of liquid hydrogen production, transportation and charging facilities for the development of hydrogen fuel technology, an eco-friendly energy. We are in charge of hydrogen production infrastructure in the value chain and is promoting as one of our new growth engines from 2020, such as supplying gaseous hydrogen charging system tailored to the expansion of hydrogen fuel cell vehicles and commercial hydrogen vehicles and building liquid hydrogen charging infrastructure. In 2020, it invested KRW 510 million in the R&D cost to develop hydrogen charging and extracting technologies in accordance with market trends to expand continuously eco-friendly mobility as well as with the government roadmap to extending hydrogen use by invigorating the hydrogen economy in 2020. Hyosung Heavy Industries, along with Linde Korea, is building the world's largest liquefied hydrogen plant at 13,000 tons per year on the site of Ulsan's Yongyeon plant which will be completed at the end of 2022 and will be in full operation from January 2024. When the liquefied hydrogen plant is in full operation, 10,950 tons of liquefied hydrogen will be produced annually, and it plans to supply liquefied hydrogen for mobility after the completion of the liquefied hydrogen charging station in February 2024. We announced its ambitious goal in June 2021 to contribute to reducing about 10% of domestic carbon dioxide emissions by establishing a hydrogen economy. For the goal, it plans to invest 1 trillion won over the next five years (by 2026) to increase its liquefied hydrogen production capacity to 39,000 tons per year.
Operations	Yes	Every year Hyosung Heavy Industries practices the responding works to the ETS such as reporting emissions and submitting a plan for calculating GHG emissions and submits them to the government after the verification from external expertise agencies. In addition, it annually establishes the investment budget of GHG reduction and energy efficiency. Changwon Plant increases the energy use with relatively low impact on the environment by replacing the existing bunker C oil with LPG / LNG. The emissions due to electricity use account for 83 % out of the GHG emissions and it implements mainly the activities of reducing electricity use. The just verification costs related to GHG emissions annually is more than KRW 10 million and was KRW 2,766 million to rationalization of GIS simplified synthesis test facilities. In 2022, we planned to invest KRW 940 million in facilities rationalization including GIS gas confidential automation tester. In addition, we invested a total of 141 million won in 2022 to replace the air conditioner of the breaker plant and the transformer body assembly panel, reducing greenhouse gas emissions by 134.4 tons by reducing electricity use by 292.6 MWh per year.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital	<p>1) Revenues: Eco-friendly electric power equipment and hydrogen stations are one of the new growth engines and the demands increase due to the demand for eco-friendly materials in the market, the growth in the number of hydrogen cars and the prospect for hydrogen energy conversion. If the demand for hydrogen facilities explosively grows in the future, Hyosung Heavy Industries plans to expand the production capacity through additional facilities, centrally in Changwon Plant. Sales of eco-friendly power devices are around KRW 204,230 million in 2022. But the need for eco-friendly and low-carbon is steadily occurring in the domestic market in Korea as well as in the European and North American markets. Considering the expansion of business related to new and renewable energy, sales of eco-friendly power devices are expected to increase to KRW 278,000 million by 2026.</p> <p>2) Indirect costs : Of the indirect costs, the energy costs for Hyosung Heavy Industries' product production are KRW 32,900 million occupying 1 % of the total operating costs. Due to the climate change, globally the average temperature gets higher, and the days of heat and cold waves increase. Those situations may directly lead to the increase in heating and cooling costs because it needs to manage the temperature within the certain range to manufacture products with the constant quality in workplaces. Hyosung Heavy Industries manages the electricity use not to exceed the certain level by monitoring electric power peak and establishes the financial plan and the annual budget considering energy costs due to heat and cold waves.</p> <p>3) Capital expenditures / Capital allocation : Hyosung Heavy Industries strengthens the existing business's ability and plans to build production facilities in order to secure the new growth engine. Hyosung Heavy Industries says announces that it has a plan to invest KRW 300 billion in constructing a liquid hydrogen plant with the capacity of 13,000 tons per year and to build about 120 liquid hydrogen stations in all parts of the country. Therefore, Furthermore Hyosung Heavy Industries planned to invest KRW 3.5 billion in additionally building test facilities line for axial generator motor system in Changwon Plant.</p> <p>4) Acquisitions and divestments : Hyosung Heavy Industries was spun off from Hyosung Co. in 2018 and currently has no plan for acquisitions or divestments. If acquisitions or divestments occur in the future, it will review the risk due to climate change from the opportunity perspective from the initial phase. The critical decision about investments and divestment will be made in the board.</p> <p>5) Access to capital : Under the ETS system, if Hyosung Heavy Industries has problems in emission reports or passively copes with the GHG emissions target (14.5 % reduction by 2030 compared to 2018) externally disclosed, the reputation risk would negatively affect the enterprise value. If so, it would suffer from accessing to capital to expand its climate change related investment in the future. However, its possibility is supposed to be so low. Hyosung Heavy Industries has no plan of financial plan for access to capital to cope with climate change risks or for using opportunities and plans to establish it, if necessary.</p>

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition	Indicate the level at which you identify the alignment of your spending/revenue with a sustainable finance taxonomy
Row 1	No, but we plan to in the next two years	<Not Applicable>

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

Is this a science-based target?

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

Target ambition

<Not Applicable>

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

<Not Applicable>

Base year

2018

Base year Scope 1 emissions covered by target (metric tons CO2e)

13188.069

Base year Scope 2 emissions covered by target (metric tons CO2e)

61047.003

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year total Scope 3 emissions covered by target (metric tons CO2e)

<Not Applicable>

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

74235.072

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

100

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)

<Not Applicable>

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

<Not Applicable>

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2030

Targeted reduction from base year (%)

14.5

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

63470.98656

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

10042.883

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

41796.123

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

51839.006

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions

Hyosung Heavy Industries has set the company-wide target.

Plan for achieving target, and progress made to the end of the reporting year

In 2021, Hyosung Heavy Industries set the target of reducing GHG emissions by 14.5% and 2030 compared to 2018 to contribute to the achievement of the NDC and to meet the voluntary crisis awareness and requests of various stakeholders. Out of 18 sites reporting on Scope 1+2 of the company, Changwon 1-4 plants account for a high proportion of the total emissions in 2022. They account for 56% of direct and 80% of indirect emissions in 2022. In addition, out of 51,839.006 tons of Scope 1+2 total emissions as of 2022, indirect emissions were 41,796.12 tons, accounting for 81% of the company. Accordingly, as a plan to achieve the GHG reduction target, the short-term (2023) and mid-term (2030) targets were set, and related power reduction measures such as dust collection facilities at Changwon Plant are planned to be introduced.

<Plan for each reduction method to achieve Hyosung Heavy Industries' target>

1. In the case of dust collection facilities, it is intended to reduce power consumption due to the optimization design replacement of belt and pulley. The expected introduction date of the reduction method is June 2023, and it is expected to save 48.7 tons when introduced.
2. In the case of a low-voltage electric motor, a heat exchanger is attached to a catalyst combustion facility by a low-voltage medium-sized impregnated drying method to reduce power consumption due to waste heat recovery. The facility is expected to be introduced in June 2023, and it is expected to save 125.4 tons when introduced.
3. We have a plan to convert the business of the casting process to save energy during 2022~2023, if the work is carried out, 7,111 tons is expected to be saved.

<The emissions reduction initiatives which contributed most to implement the target in reporting year>

Hyosung Heavy Industries is a core company in the power industry and has established and implemented the 2030 Green Management Strategy System to achieve the GHG reduction target. We carried out the activities for GHG reduction such as replacing air conditioners/heater at the breaker plant and transformer body assembly sector in 2022 to minimize the risk of an emission shortage of allowances owned. The result of the investment, we reduced the GHG emissions by 134.4 tons by reducing electricity use by 292.6 MWh per year.

List the emissions reduction initiatives which contributed most to achieving this target

<Not Applicable>

C4.2**(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

No other climate-related targets

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	0	0
To be implemented*	2	7285.1
Implementation commenced*	1	15
Implemented*	2	134.4
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 category & Initiative type

Energy efficiency in production processes	Machine/equipment replacement
---	-------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

15.1

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

4244100

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

46000000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

Hyosung Heavy Industries replaced the air conditioner at its plant that uses circuit breakers, reducing its annual power consumption by 32.9MWh and reducing its greenhouse gas emissions (Scope2) by 15.1 tons in 2022.

Initiative category & Initiative type

Energy efficiency in production processes	Machine/equipment replacement
---	-------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

119.3

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

33499999

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

95000000

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Hyosung Heavy Industries replaced the air conditioner of the transformer body assembly panel, reducing its annual power consumption by 259.7MWh and reducing its greenhouse gas emissions (Scope2) by 119.3 tons in 2022.

C4.3c

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

Method	Comment
Dedicated budget for energy efficiency	Hyosung Heavy Industries establishes a budget for reducing greenhouse gas emissions and investing in energy efficiency every year. The budget includes all energy efficiency projects such as facility replacement, energy source change, and process improvement. Greenhouse gas emissions from electricity use account for 81% of the total emissions, especially focusing on activities to reduce electricity use.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

Climate Bonds Taxonomy

Type of product(s) or service(s)

Other	Other, please specify (Gas Insulated Switchgear)
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Description of product(s) or service(s)

Low-carbon products are Novec Mixture Gas Insulated Switchgear (hereinafter referred to as GIS), and it can be classified as 'Circuit breakers and switchgear' among 'Transmission & Distribution' in 'Climate Bonds Taxonomy'. The existing GIS is a switchgear for protecting power facilities, and internal insulation is performed using SF6 Gas. However, since the GWP (23,900) index of SF6 gas is high, we developed GIS using Novec Mixture Gas as a replacement gas. The GWP of Novec Mixture, which replaced SF6 gas, is less than 500, which is expected to contribute to a 98% reduction in warming effect compared to existing SF6 Gas.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Methodology for Environmental Life-Cycle Assessment of Information and Communication Technology Goods, Networks and Services (ITU-TL.1410)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Use stage

Functional unit used

The functional unit is the comparison value of the emissions of '144kV SF6 Gas Insulated Switchgear' and '144kV Novec Mixture Gas Insulated Switchgear' in phase of use for 40 years of product life.

Reference product/service or baseline scenario used

The annual leak rate (0.1%) of SF6 Gas of GIS for one year was applied to the emission of '144kV SF6 Gas Insulated Switchgear' in the phase of use and the emission of the phase of use was calculated as BAU.

Life cycle stage(s) covered for the reference product/service or baseline scenario

Use stage

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

157.388

Explain your calculation of avoided emissions, including any assumptions

$160.6 \text{ tCO}_2/\text{unit} * 0.98 = 157.388$

160 tCO2 is the greenhouse gas emission generated by applying a leak rate of 0.1% over the life (40 years) of 144 kV GIS. The avoidance emissions were calculated using the corresponding emissions and 98% of the warming effect compared to the existing SF6 gas.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

0.01

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

No

Name of organization(s) acquired, divested from, or merged with

<Not Applicable>

Details of structural change(s), including completion dates

<Not Applicable>

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	Yes, a change in methodology Yes, a change in reporting year definition	<p><Change In Methodology> The emission factor applied to some of the 2022 calculation products have been updated compared to 2021 in Category 1 and 2. The emission factor on electricity have updated as the data for factor was changed compared to 2021 in Category 3. An oceangoing vessel(containers) was added as a means of transport and the emission factor was applied accordingly in Category 4 and 9. In the case of Category 6, the latest emission factor of EPA was applied to calculations on business trip distance and means of transportation. In the case of Category 7, the emission factor by transportation have updated compared to 2021. As the new products calculated were added, the emission factor for them was applied in Category 11 and 12. The emission factor for national electricity applied in Category 15 was applied as IEA and data each government ministry of countries disclose.</p> <p><Change In Boundary> In the case of Category 1, Compared to 2021, 23 products such as anti-rust oil and motors were added to the heavy industry sector's emissions calculation products, while PHC files, tiles, and cables were added to the construction site sector's emissions calculation products. In the case of Category 2, Compared to 2021, Multi-function Printer and printer products were added to our emissions calculation capital goods, and PC main bodies, monitors, and air conditioners were added as investment details. Category 4 calculated the transportation emission of products including additional items in Category 1, and Category 5 calculated items of construction waste decreased. Category 6 calculated the number of overseas/domestic business trips and business trips increased compared to 2021, and Category 7 calculated Anyang plant and Icheon (Wellington) employees were added compared to 2021. In the case of Category 9, motors (high-voltage, low-voltage) compared to 2021 added to the calculated items, and the increase in the number of calculated items compared to 2021. In Category 11, motors (high-voltage, low-voltage) were added compared to 2021, and in Category 12, motors (high-voltage, low-voltage) were additionally calculated compared to 2021. In the case of Category 15, Vietnamese business sites (overseas business sites) and CHINHUNG INTERNATIONAL, INC. (domestic business sites) were additionally calculated.</p>

C5.1c

(C5.1c) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in C5.1a and/or C5.1b?

	Base year recalculation	Scope(s) recalculated	Base year emissions recalculation policy, including significance threshold	Past years' recalculation
Row 1	No, because the impact does not meet our significance threshold	<Not Applicable>	Hyosung Heavy Industries GHG reduction goal in relation to the significance criterion for re-calculation of emissions in the base year is to reduce 14.5% of GHG emissions in 2018 by 2030, and the target includes Scope 1 and 2 emissions. As a result, the boundary for calculating Scope3 emissions was changed in the reporting year, but Scope3 emissions were excluded from the scope of this recalculation because they do not fall within the scope of Hyosung Heavy Industries GHG reduction target and are not subject to mandatory reporting of the emission trading system.	No

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

13188.069

Comment

In 2018, Scope1 emissions in the heavy industry sector were 9,641.069 tons and 3,547.000 tons in the construction sector.

Scope 2 (location-based)

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

61047.003

Comment

In 2018, Scope 2 emissions in the heavy industry sector were 48,115.003 tons and 12,932.000 tons in the construction sector.

Scope 2 (market-based)

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

0

Comment

The Korean electricity market is a single regional-based market supplied by KEPCO, and there is no market-based electricity market.

Scope 3 category 1: Purchased goods and services

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 2: Capital goods

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 5: Waste generated in operations

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 6: Business travel

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 7: Employee commuting

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 12: End of life treatment of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate 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)
The Greenhouse Gas Protocol: Scope 2 Guidance
The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Standard

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)

10042.883

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

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

Comment

The Korean power market is a single regional-based market supplied by KEPCO, and there is no private power market.

C6.3

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

Reporting year

Scope 2, location-based

41796.123

Scope 2, market-based (if applicable)

<Not Applicable>

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 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 gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

537415

Emissions calculation methodology

Average data method

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

0

Please explain

The usage of heavy industry, construction raw materials, and water purchased in the reporting year (2022) was set as the scope of calculating emissions. Heavy industrial materials (domestic) account for more than 98.09% of the total weight, heavy industrial materials (foreign capital) account for more than 95.13% of the total weight, and construction raw materials account for more than 99% of the total weight, and materials in the heavy industrial sector were calculated including OEM products. In addition, vehicles rented in 2022 were identified as Category 1 in the concept of service purchase to calculate the emission.

Calculation of Emissions: $\sum A \text{ amount of product purchased} \times \text{Greenhouse gas emission factor (kgCO}_2\text{-eq)}$

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

21

Emissions calculation methodology

Average data method

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

0

Please explain

The number of PCs, monitors, laptops, printers, PC bodies, and Multi-function Printer purchased in the reporting year (2022) was set as the range of emission calculation. In addition, investment details (PC main body, monitor, and air conditioner) were added to the range of emission calculation. As the emission factor, a value corresponding to the pre-manufacturing and manufacturing stages among the emissions of environmental performance label certified products was used.

Calculation of Emissions: $\sum (A \text{ amount of purchased Individual laptop \& monitor(ea)} \times \text{Individual greenhouse gas emission factor (kgCO}_2\text{/ea)})$

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

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

6866

Emissions calculation methodology

Fuel-based method

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

100

Please explain

In the reporting year (2022), the amount of greenhouse gas emissions generated during the mining, production, and transportation of fuels purchased and consumed by Hyosung Heavy Industries was set as the calculation range. The emission factor was the environmental performance label evaluation factor of the Ministry of Environment.

Calculation of Emissions: $\sum (\text{monthly consumption} \times \text{greenhouse gas emission factor (kgCO}_2\text{-eq)})$

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

14603

Emissions calculation methodology

Distance-based method

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

0

Please explain

In the reporting year (2022), all cases where Hyosung Heavy Industries paid and received transportation costs for raw materials transported from suppliers in the heavy industry and construction sector were included in the calculation scope. The emission factor was the environmental performance label evaluation factor of the Ministry of Environment.

Calculation of Emission: $\sum \text{Monthly raw material transport distance (km)} \times \text{raw material weight (ton)} \times \text{individual greenhouse gas emission factor (kgCO}_2\text{/ton.km)}$

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

3612

Emissions calculation methodology

Waste-type-specific method

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

100

Please explain

In the reporting year (2022), the amount of waste generated during the operation process and the amount of emissions generated during the waste treatment process were calculated. Activity data used data on waste emissions from all workplaces subject to environmental information disclosure and Gongdeok Building, and emission coefficients according to the type of waste and disposal method were applied. The emission factor was the environmental performance label evaluation factor of the Ministry of Environment.

Calculation of Emission: \sum Company-wide waste emission (kg) X GHG emission factor by treatment method (kgCO₂/kg)

Business travel

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

3343

Emissions calculation methodology

Distance-based method

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

0

Please explain

In the reporting year (2022), a mount of emissions generated from domestic and overseas business trips by full-time employees was calculated. Activity data were used for domestic and overseas business travel records (business trip personnel, travel destination, means of transportation) managed through the company-wide system, and the emission factor according to the means of transportation during the business trip (one person.km) applied.

- Calculation of emissions: \sum (Overseas/Domestic travel distance (km person) by employee) X Greenhouse gas emission factor by means of transportation (kg-CO₂/person/km)

Employee commuting

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

1056

Emissions calculation methodology

Average data method
Distance-based method

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

0

Please explain

In the reporting year (2022), a mount of emissions generated from the commuting of the headquarters staff and the operation of the Changwon plant commuter bus (when the transportation service of an external carrier was purchased) was calculated. In the case of the headquarters, activity data were applied using the number of employees working at the headquarters (Construction, Mapo), plant in Anyang, and Icheon (Wellington) and statistical information by transportation used for commuting (Seoul and Gyeonggi-do).

In the case of the Changwon plant, activity data were applied using commuter bus operation record (number of operations, route) and data on the emission factor for commuter bus (45 seater) was applied.

Calculation of emissions: 1) Commuting to headquarters: \sum (Greenhouse gas emission factor by transportation (kgCO₂e/ person.km) X Number of employees by means of transportation (person/day) X Number of working days (day/year) X commuting distance (km/day)), 2) Factory commuter bus: \sum (Monthly commuter bus operation X (distance of operation) X greenhouse gas emission coefficient (kgCO₂e/km))

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Hyosung Heavy Industries does not operate rental assets, so it is impossible to calculate emissions for the category.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

3244

Emissions calculation methodology

Distance-based method

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

0

Please explain

In the reporting year (2022), Hyosung Heavy Industries set the calculation range for all cases in which it receives transportation costs and payment of transportation costs for products transported at the time of delivery to customer companies. The emission factor was the environmental performance label evaluation factor of the Ministry of Environment.

Calculation of Emission: \sum Monthly raw material transport distance (km) X raw material weight (ton) X individual greenhouse gas emission factor (kgCO₂/ton.km)

Processing of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Hyosung Heavy Industries is a final goods producer and cannot calculate emissions for the category.

Use of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

170395980

Emissions calculation methodology

Average product method

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

0

Please explain

The main products sold by the heavy industry business sector in the reporting year (2022) were set as the calculation range. As the emission factor of transformers and circuit breakers, the LCA calculation emission factor disclosed in the data of Hyosung Heavy Industries' Power Technology Magazine' in 2022 was used.

As for the emission coefficient of the motor, we used our own developed data using the emission coefficient disclosed in EPD.

Calculation of Emission:

Transformers and circuit breakers: \sum Monthly sold product weight (ton) X individual greenhouse gas emission factor (kgCO₂/ton)

Motors: \sum Monthly sold product capacity (kW) X individual greenhouse gas emission factor (kgCO₂/kW)

End of life treatment of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

1654

Emissions calculation methodology

Average data method

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

0

Please explain

In the reporting year (2022), the weight of discarded products after sales in the heavy industry business sector was set as the calculation range. As the emission factor of transformers and circuit breakers, the LCA calculation emission factor disclosed in the data of Hyosung Heavy Industries 'Power Technology Magazine' in 2022 was used. As the emission factor of motors, emission coefficient of the motor disclosed in EPD was used.

Calculation of Emission:

Transformers and circuit breakers: \sum Monthly sold product weight (ton) X individual greenhouse gas emission factor (kgCO₂/ton)

Motors: \sum Monthly sold product capacity (kW) X individual greenhouse gas emission factor (kgCO₂/kW)

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Hyosung Heavy Industries does not operate rental assets, so it is impossible to calculate emissions for the category.

Franchises

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Due to the nature of the business, it is not a form of franchise business, so it is impossible to calculate emissions for the category.

Investments

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

24469

Emissions calculation methodology

Investment-specific method

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

100

Please explain

The following workplaces were newly applied to calculation of Category 15. They are U.S., India, and China businesses with 100% stake among overseas businesses and a domestic "CHINHUNG INTERNATIONAL, INC" whose share ratio is not 100%, but whose activity data is verified. The emissions of all businesses did unverified separately and are the result of self-calculation using internal data.

Calculation of Emission : \sum Each company's emissions (tCO2-eq) X stake (%)

Other (upstream)

Evaluation status

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

All Scope 3 emissions were reported within the top 15 categories.

Other (downstream)

Evaluation status

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

C-CG6.6

(C-CG6.6) Does your organization assess the life cycle emissions of any of its products or services?

	Assessment of life cycle emissions	Comment
Row 1	Yes	At the end of 2021, to calculate and manage carbon footprint of major products, Hyosung Heavy Industries quantitatively evaluated the impact of the manufacturing process environment by calculating a Life Cycle Assessment (LCA) carbon emissions on each of one of the ultra-high voltage transformer three-phase 132kV 133MVA, eco-friendly insulating oil transformer, and 132Kv 40kA GIS 1 Bay. Hyosung Heavy Industries is planning to further increase the range and quantity of target products.

C-CG6.6a

(C-CG6.6a) Provide details of how your organization assesses the life cycle emissions of its products or services.

	Products/services assessed	Life cycle stage(s) most commonly covered	Methodologies/standards/tools applied	Comment
Row 1	Representative selection of products/services	Cradle-to-grave	ISO 14067 PAS 2050	It was calculated based on ISO 14067, an international standard, and PAS 2050, which is widely used around the world, to calculate the carbon footprint of each product of an UHV transformer three-phase 132kV 133MVA, one eco-friendly insulating oil transformer, and one 132Kv 40kA GIS 1 Bay. In addition, for the contents not specified in the guidelines, the contents of the 'Common Guidelines' on the Environmental Performance Mark of the Korea Institute of Environmental Industry were applied. As for the carbon emission factor, the national (Korea) LCI DB was first applied, and if the national LCI DB did not exist, Eco-Invent, an overseas LCI DB, was applied.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic 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

2e-8

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

51839

Metric denominator

unit total revenue

Metric denominator: Unit total

2589772103578

Scope 2 figure used

Location-based

% change from previous year

12.86

Direction of change

Decreased

Reason(s) for change

Other emissions reduction activities

Please explain

Hyosung Heavy Industries set 'emissions (numerator) and revenue (denominator)' as the factors to affect GHG intensity. The CO2e per unit currency total revenue decreased 12.8% from the previous year in 2021.

(*2022 intensity figure(tCO2e/total revenue(KRW)) = 51,839.006/2,589,772,103,578 = 0.00000020017, *2021 intensity figure(tCO2e/total revenue(KRW)) = 54,109.89/2,355,525,000,000= 0.00000022971) due to GHG reduction activities. The reason for the decrease is that in 2022, the air conditioner of the breaker factory and the transformer body assembly board was replaced, and greenhouse gas reduction activities such as internal lunch time lights and heating and cooling temperature management were carried out.

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	9998.17	IPCC Second Assessment Report (SAR - 100 year)
CH4	11.35	IPCC Second Assessment Report (SAR - 100 year)
N2O	33.36	IPCC Second Assessment Report (SAR - 100 year)

C7.2

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

Country/area/region	Scope 1 emissions (metric tons CO2e)
Republic of Korea	10042.883

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
Changwon Plant 1	2705.142	35.218898	128.662106
Changwon Plant 2	1.237	35.216112	128.664643
Changwon Plant 3	2874.278	35.215088	128.65925
Changwon Plant 4	78.487	35.212922	128.650066
Sejong Plant	0	36.552106	127.273809
Jewelry City	12.393	37.571384	126.999377
Gangnam Seocho officetel	0	37.491175	127.029342
Samsung-dong I-park store	0	37.518737	127.05829
Wellington CC	525.344	37.16772	127.424899
Gongdeok Building_Hyosung Heavy Inderstries	286.253	37.545541	126.951698
Hoehyeon AK Tower	132.447	37.5596	126.9795
Banpo Building_Hyosung Heavy Inderstries	2.702	37.500652	127.003353
Masan Kisan Plaza	0	35.20531	128.580715
Hyosung Heavy Inderstries_Construction sites	3419.19	37.5596	126.9795
Anyang Plant_Hyosung Heavy Inderstries	5.413	37.382658	126.943591

C7.5

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

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Republic of Korea	41796.123	

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 (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Changwon Plant 1	14732.875	
Changwon Plant 2	2085.448	
Changwon Plant 3	14688.24	
Changwon Plant 4	1902.034	
Sejong Plant	142.812	
Jewelry City	46.991	
Gangnam Seocho officetel	62.131	
Samsung-dong I-park store	8.923	
Wellington CC	1466.571	
Gongdeok Building_Hyosung Heavy Inderstries	407.213	
Hoehyeon AK Tower	638.756	
Banpo Building_Hyosung Heavy Inderstries	40.356	
Masan Kisan Plaza	48.44	
Hyosung Heavy Inderstries_Construction sites	5521.291	
Anyang Plant_Hyosung Heavy Inderstries	4.041	

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

Not relevant as we do not have any subsidiaries

C7.9

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

Decreased

C7.9a

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

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	Hyosung Heavy Industries has no renewable energy consumption, so there is no change.
Other emissions reduction activities	78.4	Decreased	0.14	Last year, GHG reduction was 56 tons but we could reduce the 134.4ton through GHG reduction project in 2022 and the reduction increased 78 tons from last year. Therefore, emissions decreased by 78 tons compared to last year, and the rate of change to total emissions last year was 0.14%.
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output	2192.484	Decreased	4.05	The emission of GHG reduced 2,192.484 tons from last year due to production fluctuations, and the ratio of change to total emissions last year was 4.05%.
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

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

Location-based

C-CG7.10

(C-CG7.10) How do your total Scope 3 emissions for the reporting year compare to those of the previous reporting year?

Increased

C-CG7.10a

(C-CG7.10a) For each Scope 3 category calculated in C6.5, specify how your emissions compare to the previous year and identify the reason for any change.

Purchased goods and services

Direction of change

Increased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

152309.99

% change in emissions in this category

39.55

Please explain

Compared to 2021, 23 products such as anti-rust oil and motors were added to the heavy industry sector's emissions calculation products, while PHC files, tiles, and cables were added to the construction site sector's emissions calculation products. In addition, four more rental vehicles were added in 2022 compared to 2021. Therefore, the emissions have increased.

Capital goods

Direction of change

Decreased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

13.92

% change in emissions in this category

40.14

Please explain

Compared to 2021, Multi-function Printer and printer products were added to the heavy industry sector's emissions calculation capital goods, and PC main bodies, monitors, and air conditioners were added as investment details as well. However, the number of calculated items decreased from 1,615 to 668 compared to 2021, resulting in a decrease in emissions.

Fuel and energy-related activities (not included in Scopes 1 or 2)

Direction of change

Increased

Primary reason for change

Change in output

Change in emissions in this category (metric tons CO2e)

2500.07

% change in emissions in this category

57.26

Please explain

It was confirmed that emissions increased in 2022 compared to 2021 in the Scope 1 fuel due to an increase in energy activities such as kerosene and propane and a change in the method of calculating the power emission coefficient.

Upstream transportation and distribution

Direction of change

Increased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

8448

% change in emissions in this category

137.26

Please explain

The transportation emissions of products including additional items in Category 1 were calculated, and the total weight of them increased compared to 2021, resulting in an increase in emissions.

Waste generated in operations

Direction of change

Decreased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

7310.07

% change in emissions in this category

66.93

Please explain

The sector of waste generated operations decreased in 2022 compared to 2021 due to the reduction in the calculation items and throughput of construction waste.

Business travel

Direction of change

Increased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

2647.45

% change in emissions in this category

380.36

Please explain

The distance for business travel increased compared to 2021 as the number of overseas and domestic increased. The number of overseas business trips was 422 and domestic was 22,060 in 2021, but the number of overseas business trips was 1,017 and domestic was 23,449 in 2022. In the case of distance, overseas business trips were 6,899,219 km and domestic were 22,060 km in 2021, but overseas business trips were 15,899,767 km and domestic were 6,276,006 km in 2022. Therefore, the number of overseas and domestic business trips and travel distance increased compared to 2021, so emissions increased as well.

Employee commuting

Direction of change

Decreased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

18

% change in emissions in this category

1.68

Please explain

In the case of commuting to the headquarters, the emission on employee commuting of plant in Anyang and Wellington in Icheon were additionally calculated compared to 2021. Their emission factor was applied as the latest one using recent data in 2022, but the figure was declined. Therefore, total emission was reduced.

Downstream transportation and distribution

Direction of change

Increased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

1347.66

% change in emissions in this category

71.07

Please explain

In the sales product transportation and distribution sector, emissions increased in 2022 compared to 2021 because motors were added to emissions-calculating products, and the number of them increased. In addition, the transportation of mold transformers and circuit breakers was changed to an oceangoing vessel(containers) and applied at a higher value than the previous. Therefore, total emissions in the sector were increased.

Use of sold products

Direction of change

Increased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

161829124.16

% change in emissions in this category

999

Please explain

With the addition of motors and constructions (2022) to products that calculate emissions compared to 2021, emissions in the use sector of products sold increased compared to 2021. The actual change rate is 1,889.01%, but since the range that can be written is 0-999, it is written as 999 in column 5.

End-of-life treatment of sold products

Direction of change

Increased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

280.26

% change in emissions in this category

20.4

Please explain

Total emission for end-of-life treatment of sold product increased compared to 2021 as the motor was added in category of product.

Investments

Direction of change

Increased

Primary reason for change

Change in boundary

Change in emissions in this category (metric tons CO2e)

9877.59

% change in emissions in this category

67.69

Please explain

2 workplaces(VINA-Industrial in Vietnam and CHINHUNG INTERNATIONAL, INC in Korea) were newly applied to calculation of Category 15 compared to 2021. VINA-Industrial in Vietnam was established in Jul 2022 with 100% stake and CHINHUNG INTERNATIONAL, INC have calculated GHG emission since 2022. Therefore, total emissions increased compared to 2021.

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 undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	No

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	45564.57	45564.57
Consumption of purchased or acquired electricity	<Not Applicable>	0	90977.7	90977.7
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	14739.72	14739.72
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	0	151282.01	151282.01

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

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

C8.2c

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

Sustainable biomass

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Other biomass

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Coal

Heating value

HHV

Total fuel MWh consumed by the organization

3665.38

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Combustion of anthracite and other solid fuels

Oil

Heating value

HHV

Total fuel MWh consumed by the organization

12751.23

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Total value of gasoline, diesel, and kerosene

Gas

Heating value

HHV

Total fuel MWh consumed by the organization

29157.97

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Total value of LNG, LPG, propane

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

Please select

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Total fuel

Heating value

HHV

Total fuel MWh consumed by the organization

45564.58

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area

Republic of Korea

Consumption of purchased electricity (MWh)

90977.7

Consumption of self-generated electricity (MWh)

0

Is this electricity consumption excluded from your RE100 commitment?

<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)

14739.72

Consumption of self-generated heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

105717.42

C-CG8.5

(C-CG8.5) Does your organization measure the efficiency of any of its products or services?

	Measurement of product/service efficiency	Comment
Row 1	Yes	Transformers manufactured by Hyosung Heavy Industries are designed and manufactured on an order basis, and each product measures the loss of the transformer itself and product efficiency according to the design value and specifies it in the specification.

C-CG8.5a

(C-CG8.5a) Provide details of the metrics used to measure the efficiency of your organization's products or services.

Category of product or service

Power transmission, transformation and distribution equipment

Product or service (optional)

% of revenue from this product or service in the reporting year

40

Efficiency figure in the reporting year

99.6

Metric numerator

%

Metric denominator

Not applicable

Comment

The transformer manufactured by Hyosung Heavy Industries has a molded transformer and an oil-immersed transformer. Based on oil-immersed TR for high voltage and large capacity, there are no-load loss caused by the resistance of the core in the transformer, load loss caused by the resistance of the coil, and loss caused by the cooling device of the transformer, which varies depending on the load of the transformer. In general, the efficiency is 99.7% or higher even at a 100% load and may vary depending on the design value.

C9. Additional metrics

C9.1

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

Description

Please select

Metric value

Metric numerator

Metric denominator (intensity metric only)

% change from previous year

Direction of change

<Not Applicable>

Please explain

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	A total of KRW 9,403,360,251 was invested in R&D expenses for circuit breaker, a low-carbon product in 2022.

C-CG9.6a

(C-CG9.6a) Provide details of your organization's investments in low-carbon R&D for capital goods products and services over the last three years.

Technology area

Other, please specify (Development of eco-friendly products)

Stage of development in the reporting year

Applied research and development

Average % of total R&D investment over the last 3 years

17.91

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

9403360251

Average % of total R&D investment planned over the next 5 years

16.09

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

Hyosung Heavy Industries' GIS customers are distributed around the world and can reduce their actual greenhouse gas reduction through the development of eco-friendly GIS, so it is expected to contribute to the global Net-Zero goal through the sale of the products.

C-CN9.6a/C-RE9.6a

(C-CN9.6a/C-RE9.6a) Provide details of your organization's investments in low-carbon R&D for real estate and construction activities over the last three years.

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 emissions, and attach the relevant statements.

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

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Relevant standard

Korean GHG and energy target management system

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

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

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Relevant standard

Korean GHG and energy target management system

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

Scope 3: Purchased goods and services

Scope 3: Capital goods

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)

Scope 3: Upstream transportation and distribution

Scope 3: Waste generated in operations

Scope 3: Business travel

Scope 3: Employee commuting

Scope 3: Investments

Scope 3: Downstream transportation and distribution

Scope 3: Use of sold products

Scope 3: End-of-life treatment of sold products

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

2022 Scope3_VERIFICATION STATEMENT GHG INVENTORY_Hyosung Heavy Industries.pdf

Page/section reference

1 Page

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

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
C1. Governance	Other, please specify (The governance structure related to climate change of Hyosung Group and Hyosung Heavy Industries)	AA1000AS(v3), AA1000AP(2018)	Hyosung Heavy Industries officially declared its support for TCFD in October 2022, and it specified the governance structure related to climate change in accordance with the TCFD recommendation in the 2022 Sustainable Management Report and received third-party verification.
C2. Risks and opportunities	Other, please specify (The risk management related to climate change of Hyosung Group and Hyosung Heavy Industries)	AA1000AS(v3), AA1000AP(2018)	Hyosung Heavy Industries officially declared its support for TCFD in October 2022, and it specified the risk management related to climate change in accordance with the TCFD recommendation in the 2022 Sustainable Management Report and received third-party verification.
C3. Business strategy	Other, please specify (The response related to climate change of Hyosung Group and Hyosung Heavy Industries)	AA1000AS(v3), AA1000AP(2018)	Hyosung Heavy Industries officially declared its support for TCFD in October 2022, and it specified the response related to climate change in accordance with the TCFD recommendation in the 2022 Sustainable Management Report and received third-party verification.
C4. Targets and performance	Progress against emissions reduction target	AA1000AS(v3), AA1000AP(2018)	Hyosung Heavy Industries officially declared its support for TCFD in October 2022, and it specified the GHG reduction target related to climate change in accordance with the TCFD recommendation in the 2022 Sustainable Management Report and received third-party verification.
C5. Emissions performance	Other, please specify (Emissions of base year)	ISO14064-3	Hyosung Heavy Industries is business entities eligible for allocation of the emissions trading system. We have undergone third-party verification for base year GHG emissions and energy use by workplace and emission facilities in accordance with the verification standards of the Korea Emissions Trading System based on ISO14064-3.
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	ISO14064-3	Hyosung Heavy Industries is business entities eligible for allocation of the emissions trading system. We have undergone third-party verification for base year GHG emissions and energy use by workplace and emission facilities in accordance with the verification standards of the Korea Emissions Trading System based on ISO14064-3.
C7. Emissions breakdown	Year on year change in emissions (Scope 1 and 2)	ISO14064-3	Hyosung Heavy Industries is business entities eligible for allocation of the emissions trading system. We have undergone third-party verification for base year GHG emissions and energy use by workplace and emission facilities in accordance with the verification standards of the Korea Emissions Trading System based on ISO14064-3.
C8. Energy	Energy consumption	ISO14064-3	Hyosung Heavy Industries is business entities eligible for allocation of the emissions trading system. We have undergone third-party verification for base year GHG emissions and energy use by workplace and emission facilities in accordance with the verification standards of the Korea Emissions Trading System based on ISO14064-3.

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.

Korea ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

Korea ETS

% of Scope 1 emissions covered by the ETS

100

% of Scope 2 emissions covered by the ETS

100

Period start date

January 1 2022

Period end date

December 31 2022

Allowances allocated

54517

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

10042.88

Verified Scope 2 emissions in metric tons CO2e

41796.123

Details of ownership

Facilities we own and operate

Comment

Currently, Korea is operating the government's policy to achieve the national GHG reduction target (40% reduction compared to 2018), and Hyosung Heavy Industries is one of a company subject to the 'GHG Emission Trading Scheme' allocation company, implementing the emission trading system during the third commitment period (2021~2025). We were allocated 54,517 tons of Gratuitous Allocation for all workplaces. We should purchase external emissions if we exceed the GHG emission quota by the policy, our total emissions at all workplaces were "51,832tons" in 2022, rather had surplus emissions, making operating profits by selling 2,860 tons of the emission rights in April 2023. In the case of Hyosung Heavy Industries' total Scope 1 and 2 emissions of 51,832 tons in 2022, it is the final emission after verification of suitability evaluation.

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Hyosung Heavy Industries' response strategy and results of actions (including the implementation period) for the Korea-ETS carbon price system are the 3 followings.

1) Response Strategies for Korea-ETS Carbon Price System - Establishing strategies for reducing GHGs and strengthening governance

Hyosung Heavy Industries has established a green management strategy system to meet the national NDCs level in 2021. It aims to reduce GHG emissions by 14.5% compared to 2018 by 2030 and the strategic direction is 'reducing GHG emissions, commercializing low-carbon technologies through eco-friendly technology development, creating eco-friendly corporate culture, and establishing trust of stakeholders through environmental information disclosure' and implementing green management activities for all domestic businesses. Detailed objectives include contributing to the reduction of GHG emissions when using products, reducing the use of raw materials including water and utilities, and expanding recycling and reuse.

1-1) Result of actions(including the implementation period) - Monitoring and sharing of K-ETS policy trends

The Green Management Team regularly participates in government briefing sessions and meetings related to K-ETS every year, while expressing opinions through the trade association to ensure that the emission trading system can be operated well. The main contents related to K-ETS are shared with the environmental safety team of each plant and reported to the ESG management officer. Matters requiring decision-making are reported semi-annually to the ESG Management Promotion Committee, the top green management decision-making consultative body below the board level. According to the emission trading system, GHG emissions are reported every year while emission permits overs and shorts are analyzed and countermeasures are established accordingly. In addition, price trends in the emission permits market are periodically monitored to support purchases made if necessary. In order to respond to K-ETS, third-party verification were received in 2022, and emission permits price trends were monitored.

1-2) Result of actions(including the implementation period) - Implementation of GHG reduction activities and performance measurement

As a result of above work, it was confirmed that there was no shortage of emission permits in 2022 by predicting emission permits shortfalls in advance. Rather, we were able to identify surplus emissions and generate sales revenue through sales of emissions rights. In addition, Hyosung Heavy Industries is establishing a 2030 GHG reduction plan (a 14.5% reduction from 2018), and is implementing detailed reduction activities to achieve this. Each plant of Hyosung Heavy Industries is carrying out facility replacement, energy efficiency, and process improvement activities to reduce GHG. The necessary budget is reflected in the working-level department's annual financial plan, and a total of KRW 141 million was invested to 134.4tons for reducing greenhouse gas emissions by reducing electricity use by 292.6 MWh per year, including replacing air conditioners at circuit breakers and transformer rooms in 2022. We are going to invest KRW 274 million between 2022 and 2023 with switching to 200 ton die-casting furnace, replacing casting process(7,111 tons), belt optimization design (48.7 tons) and installing heat exchangers in low-voltage motors line(125.4 tons). We expect to save more than 7,285.1 tons of GHG through these savings measures.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

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.

Type of internal carbon price

Shadow price

How the price is determined

Alignment with the price of allowances under an Emissions Trading Scheme

Objective(s) for implementing this internal carbon price

Drive low-carbon investment

Identify and seize low-carbon opportunities

Scope(s) covered

Scope 1

Scope 2

Pricing approach used – spatial variance

Uniform

Pricing approach used – temporal variance

Evolutionary

Indicate how you expect the price to change over time

The internal carbon price calculation set by Hyosung Heavy Industries Co. is based on the closing price of the first business day of the first week of October of the domestic carbon emission zone K-ETS, which can vary depending on the domestic carbon emission permits price. The same price of internal carbon set by Hyosung Heavy Industries is applied throughout the company.

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)

31000

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)

31000

Business decision-making processes this internal carbon price is applied to

Capital expenditure

Operations

Product and R&D

Remuneration

Risk management

Opportunity management

Mandatory enforcement of this internal carbon price within these business decision-making processes

Yes, for all decision-making processes

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan

Hyosung Heavy Industries finally set the goal of reducing greenhouse gas emissions by 14.5% of total greenhouse gas emissions in 2018 by 2030 to meet the Nationally Determined Contribution (NDC) in 2021. The government is implementing an emission trading system that induces greenhouse gas reduction using market mechanisms as one of the means to achieve the national greenhouse gas reduction target. All of its operations are included in the K-ETS project period (2021-2025) and are regulated. In the future, quotas are expected to be gradually deducted according to the national reduction goals, and the shortage of emission permits may increase. Therefore, as carbon emission management is very important, it is necessary to prepare and respond to related risks by setting the company's internal price for carbon emission. Apart from the existing economic analysis, we aim to prepare for the demand for climate change risk management by adding internal carbon prices according to GHG emissions, and to seek risks and opportunities in the transition to a low-carbon economy by using them in strategic decisions such as business direction. Our internal carbon price is used to reduce risks in the process of transitioning to a low-carbon economy and use it as an opportunity to achieve greenhouse gas reduction goals by applying it to strategic decisions such as investment in energy facilities and new business sites. In fact, the internal carbon price is reflected in the review of the replacement of old facilities, high-efficiency facility investment, fuel conversion, and new expansion investment in the heavy industry sector and is used as the basis for decision-making. Hyosung Heavy Industries will continue to distribute the carbon price including the internal carbon price in the management plan establishment guidelines, and the strategic headquarters will announce the carbon price every year. Equipment investment and fuel conversion product agreements or reports were circulated to the person in charge of green management so that GHG reduction and excess and shortage of emission permits can be managed.

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, our customers/clients

C12.1a

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

Type of engagement

Engagement & incentivization (changing supplier behavior)

Details of engagement

Climate change performance is featured in supplier awards scheme

Offer financial incentives for suppliers who reduce your upstream emissions (Scopes 3)

% of suppliers by number

25.94

% total procurement spend (direct and indirect)

56.72

% of supplier-related Scope 3 emissions as reported in C6.5

25.94

Rationale for the coverage of your engagement

Hyosung Heavy Industries has partnership with vendors and raw materials. The vendors are in the heavy industry business sector and sell transformers, circuit breakers, etc. to us and the sales partners on raw materials sell us copper materials, steel plates, cables, and cement used at construction sites as well. We maintain a stable supply chain by supporting the sustainable growth of engagement supplier partners. And we selected total 930 companies as engagement suppliers as engagement targets to respond to the value chain beyond the company-wide crisis. The total number of 930 companies is 574 out of 1,184 in the heavy industry sector and 356 out of 2,401 in the construction sector. The engagement target of Heavy Industries is selected by purchase amount and impact, and the standard is suppliers with a semi-annual purchase amount of KRW 50 million or more or 30 warehousing times. In the case of the construction sector, companies that participated in the construction of the site for more than one month in the year are applied to engagements. Therefore, the proportion of 930 suppliers subject to engagement is 25.94% of 3,585(Heavy Industries and Construction sector) for total suppliers in 2022, and the 'risk assessment for supply chain ESG' and 'performance assessment' on these suppliers was completed in 2022. We established a Win-Win partnership for its suppliers' sustainability and supports various shared growth programs such as the 'Energy Companion Project' of Korea Energy Agency, 'Innovation Partnership' of Korea Foundation for Cooperation of Large&Small Business, Rural Affairs and the 'Industrial Innovation Movement' of Korea Chamber of Commerce and Industry. The evaluation for ESG operation status is conducted every year to manage supply chain ESG risks, and social responsibility management diagnosis provides opportunities to reduce risks to suppliers and diagnose sustainability on their own.

Impact of engagement, including measures of success

Our criterion for success measuring in supplier engagement is as follows. In the Heavy Industries sector, it is the number of suppliers selected by ranked in the top two of the 5 grades identified through our internal climate change-related condition, "ESG Evaluation of supply chain network." and in the construction sector, it is number of companies within the top 20% of each type that have been finally confirmed through internal deliberation through "performance evaluation". We consider it successful if the total number of companies that achieve S,A grades and the top 20% reaches more than 300 by 2025. As a result of the 2022 evaluation, a total of 151 companies(heavy industry 100 and construction 51) as excellent one and the annual budget was set about KRW 974,282 million to maintain the achievement of the supplier engagement goal by 2025. Our annual assessment of its suppliers consists of four parts, and we check whether energy sources and water in environment part are used for usage management and reduction activities. The heavy industry sector divides them into S, A, B, C, and D to provide support and suspension of transactions according to grades and in the construction sector, companies with more than 70 points out of 100 will receive incentive support after a final review. We conduct an evaluation twice a year. After the survey evaluation, the facts are confirmed through due diligence on some partners to give additional points to the evaluation of partners. Payment conditions will be improved when selected as an excellent partner through the evaluation of the purchasing team, and prize money will be provided when an excellent partner win the Grand Prize. We provide to them the additional incentives such as giving priority to sell products and consulting for energy saving. In 2022, a total of 21 companies were provided with consulting for energy saving and ESG management and we conducted an energy partnership project with 4 suppliers received energy-saving consulting so we can draw the improvements through on-site assessments. These measures yielded energy savings of 66.87 toe and greenhouse gas reductions of 136 tCO₂eq, representing the potential for emissions reduction in 2022. Ultimately, we could improve their awareness on climate change through supply chain engagement and supported the companies to participate in our climate change efforts.

Comment

C12.1b

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

Type of engagement & Details of engagement

Education/information sharing	Share information about your products and relevant certification schemes (i.e. Energy STAR)
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% of customers by number

2.4

% of customer - related Scope 3 emissions as reported in C6.5

0.67

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

The consumer's behavior is changing because of climate change so customers of Hyosung Heavy Industries are requesting ESG information, GHG emissions, and submit sustainable management reports. Therefore, we selected these customers as engagement targets in consideration of the business impact. In 2022, among all customers, there were requests for ESG information disclosure from Doosan Energy, Seagreen/GE Renewable Energy, SG Bank, Howden, National Grid, Samsung Electronics, Korea Electric Power Corporation, and POSCO. These customers account for 2.40% of total because they account for 15 out of our 624 customers. In addition, out of the total emissions of 170,400,878 tons of Category 9,11,12 which is a downstream calculation in our Scope 3, engagement customers' emissions are 1,155,639 tons, accounting for 0.678% of the total emissions.

Impact of engagement, including measures of success

Our criteria on engagement success is the response rate on customers' requests for information related to climate change, and if it achieves 100%, it is considered successful. In 2022, we responded 100% to requests from 15 customers, including Doosan Energy, Seagreen/GE Renewable Energy, SG Bank, Howden, National Grid, Samsung Electronics, Korea Electric Power Corporation, and POSCO to disclose information on ESG and sustainable management reports. We publish sustainable management reports and CDP reports every year to respond to customer requests, and our ESG is evaluated by KCGS in 2022. As a result, we could receive the 'Carbon Management Sector Honors' with an A- rating at Climate Change from CDP and receive the KCGS evaluation with grade 'A'. And our ESG management promotion performance was publicly shared with customers through sustainable management reports. Finally we were able to continue our partnership with customers who requested ESG information through these engagements for customers, and we are also devoted to developing eco-friendly and low-carbon products to effectively respond to this request. In particular, GIS with low-carbon products were sold 576pcs in 2022, and 90,655.488 tons of GHG could be reduced from customers' Scope 3 emissions when avoiding emissions of 157.388 tons/unit were applied.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, suppliers have to meet climate-related requirements, but they are not included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Implementation of emissions reduction initiatives

Description of this climate related requirement

Requires organization dedicated to the environment, introduce in-house energy education program, management of energy use, Implement energy reduction initiatives, Assess whether energy consumption is reduced

% suppliers by procurement spend that have to comply with this climate-related requirement

56.72

% suppliers by procurement spend in compliance with this climate-related requirement

40.23

Mechanisms for monitoring compliance with this climate-related requirement

Supplier scorecard or rating

Response to supplier non-compliance with this climate-related requirement

Other, please specify (Possible exclusion from shared growth companies (excluding those eligible for incentives))

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

210406_Agreement on Mutual Cooperation for the Establishment of Energy.pdf

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan

The CEO of Hyosung Heavy Industries participates as vice-chairman in the ENERGY ALLIANCE -related meetings. We are among the 13 major energy industry-related member companies in Korea, we are included in five companies which have the right to speak, leading the response of companies in the era of the climate crisis. Our company is one of five companies with the right to speak among 13 major member companies in the energy industry of Korea, leading the response of companies in the era of the climate crisis. Hyosung Heavy Industries pays the trade association every year to maintain the association, and actively accepts and responds to the association's requests.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Other, please specify (ENERGY ALLIACNE)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

In April 2021, the 'Energy Alliance', a private enterprise-centered energy alliance, was launched to actively respond to the government's carbon neutral neutrality policy and support energy transition policies. 10 companies including Hyosung Heavy Industries, signed MOUs to secure carbon-neutral innovation initiatives for the 'Energy Alliance,' and a total of 13 companies are currently participating. All participating companies join the carbon neutral neutrality policy and cooperate with each other in pursuing a rational energy transformation for the common benefit of sustainable national economic development. The 'Energy Alliance' will jointly respond to related policies and consider business strategies in line with the global de-carbonization trend, and Hyosung Heavy Industries' position is also in line with the opinion of this 'Energy Alliance' association. We are attending policy workshops such as preparing a survey table related to climate disclosure at the Energy Alliance, which serves as a vice-chairman, to express its opinions on policymaking.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

50000000

Describe the aim of your organization's funding

Hyosung Heavy Industries joins the carbon neutral neutrality policy of the 'Energy Alliance' and declares agreement with the association's opinion. Funds were provided for the purpose of maintaining the association.

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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

2022 Business Report_Hyosung Heavy Industries_Korean.pdf

Page/Section reference

316~317p

Content elements

Strategy

Emissions figures

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

2022 Hyosung Sustainability Report_Korean.pdf

Page/Section reference

20~25p

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Comment

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	Task Force on Climate-related Financial Disclosures (TCFD) Other, please specify (ENERGY ALLIANCE)	TCFD: TCFD is a credible global framework supported by government agencies, financial institutions and companies that provides recommendations for the disclosure of information on climate change. Hyosung Heavy Industries supports TCFD and its recommendations and seeks to increase transparency in climate-related risks and opportunities by publicly declaring support for TCFD. ENERGY ALLIANCE: Hyosung Heavy Industries is participating in an ENERGY ALLIANCE to "realization of the 2050 Carbon Neutral Initiative." The ENERGY ALLIANCE is a private-led corporate cooperation system established by the Ministry of Trade, Industry and Energy in the Korean government to establish a new private-led energy governance to achieve the national 2050 Net Zero. We are attending policy workshops such as preparing a survey table related to climate disclosure at the ENERGY ALLIANCE, which serves as a vice-chairman, to express its opinions on policymaking.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	No, but we plan to have both within the next two years	<Not Applicable>	<Not Applicable>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments only	Commitment to avoidance of negative impacts on threatened and protected species	<Not Applicable>

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

No and we don't plan to within the next two years

Value chain stage(s) covered

<Not Applicable>

Portfolio activity

<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity

<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)

<Not Applicable>

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

No and we don't plan to within the next two years

Value chain stage(s) covered

<Not Applicable>

Portfolio activity

<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity

<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)

<Not Applicable>

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?

No

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Species management

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No	Please select

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Biodiversity strategy	2022 Hyosung Sustainability Report_Korean: 17, 50p 20221229 잡피숯 보전사업 참여 관련 스크랩.pdf 2022 Hyosung Sustainability Report_Korean.pdf

C16. 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.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	CEO	Chief Executive Officer (CEO)

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

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

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

Hyosung Heavy Industries Co. Ltd. began by acquisition of Han Young Industrial Co., Ltd. In 1975. After merged into Hyosung Co. Ltd. In 1998, the construction / heavy industry division was spun off Hyosung Co., and newly established as Hyosung Heavy Industries Co., Ltd., on June 1st 2018. The headquarter is located in Seoul and the local workplaces consist of Hyosung R&D Labs under Hyosung Co. and a total of 5 plants.

Hyosung Heavy Industries is mainly involved in the heavy industries and the construction divisions.

The heavy industry division has manufactured important power sources for electrical power systems such as electric motors, generators, and gears as well as crucial equipment such as UHV transformers, breakers and LV-MV transformers supplied for building electrical power systems in the electric power industry and SOC projects. UHV transformers, Circuit breakers and LV-MV transformers, major products in the heavy industries, have continued a moderate rise depending on the global demand of replacing the old facilities and are expected to grow steadily as the demand of new renewable energy like solar and wind energy increases due to the development of new energy sources and the enhancement of environmental policies to respond to climate change in the globe. The construction division is the expansive key industry involving in the house construction which national life bases on and the building infrastructure facilities like roads and is expected to change into the developed one focusing on maintenance as the infrastructure completes and the housing supply rate improves. Considering the convergence with ICT high technology, the base of the fourth industrial revolution, and sustainable reconstruction of national land, its potential growth is expected. As the usage of communication data grows, the demand for DB center increases. Therefore, it plans to foster the construction of DB center as a new growth engine.

Hyosung Heavy Industries is a subject company to the allocation of ETS, the government greenhouse gas(GHG) regulation and has the obligation to report its emissions every year. According to the "Framework Act On Carbon Neutrality And Green Growth For Coping With Climate Crisis" enacted in 2022, the government has set a national reduction target for 2030 to 40% reduction of total national GHG emissions compared to 2018. And Hyosung Heavy Industries, which belongs to the industrial sector aims to reduce 14.5% in 2030 (222.6 million tons) compared to 2018(260.5 million tons). In 2021, Hyosung Heavy Industries set emission targets equivalent to NDC (Nationally Determined Contribution). Hyosung Heavy Industries set '14.5 % reduction by 2030 compared to the total of the national GHG emissions of 2018 as the final emissions reduction target. In addition, Hyosung Heavy Industries established the green management vision 'realization of an eco-friendly company that leads a better life for mankind' and the 4 strategies 'reduction of GHG emissions, commercialization of low-carbon technology through development of eco-friendly technology, creation of an eco-friendly corporate culture, and establishment of stakeholder trust through environmental information disclosure ' to implement green management activities for all domestic business sites. The detailed promotion work is like the following, 'contribution to GHG emission reduction when using products, decline in subsidiary materials usage including water, utility, et cetera and expansion of recycling and reuse.' In August 2021, Hyosung Heavy Industries established the ESG Management Promotion Committee by integrating the EHS Committee and the CSR Committee, and established the ESG Management Team as a dedicated management team under the ESG Management Promotion Committee. The team manages the environment on climate change and check for safety management companywide. As of 2022, the safety environment team monitors every year, and internal ISO review is also conducted for 35 departments(25 for heavy industries and 10 for construction divisions).

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	2589772103578

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

No

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Other, please specify (No, any other customers requesting emissions disclosure.)	No, any other customers requesting emissions disclosure.

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

No

SC1.4b

(SC1.4b) Explain why you do not plan to develop capabilities to allocate emissions to your customers.

Currently, there are no customers requesting disclosure of emissions, and in the event of additional customers requesting disclosure of emissions in the future, the allocation method should be developed in consideration of the type of customer (stakeholders, suppliers, investors, etc.) Therefore, it is not possible to develop an allocation method without the customer being determined.

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

No, I am not providing data

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms