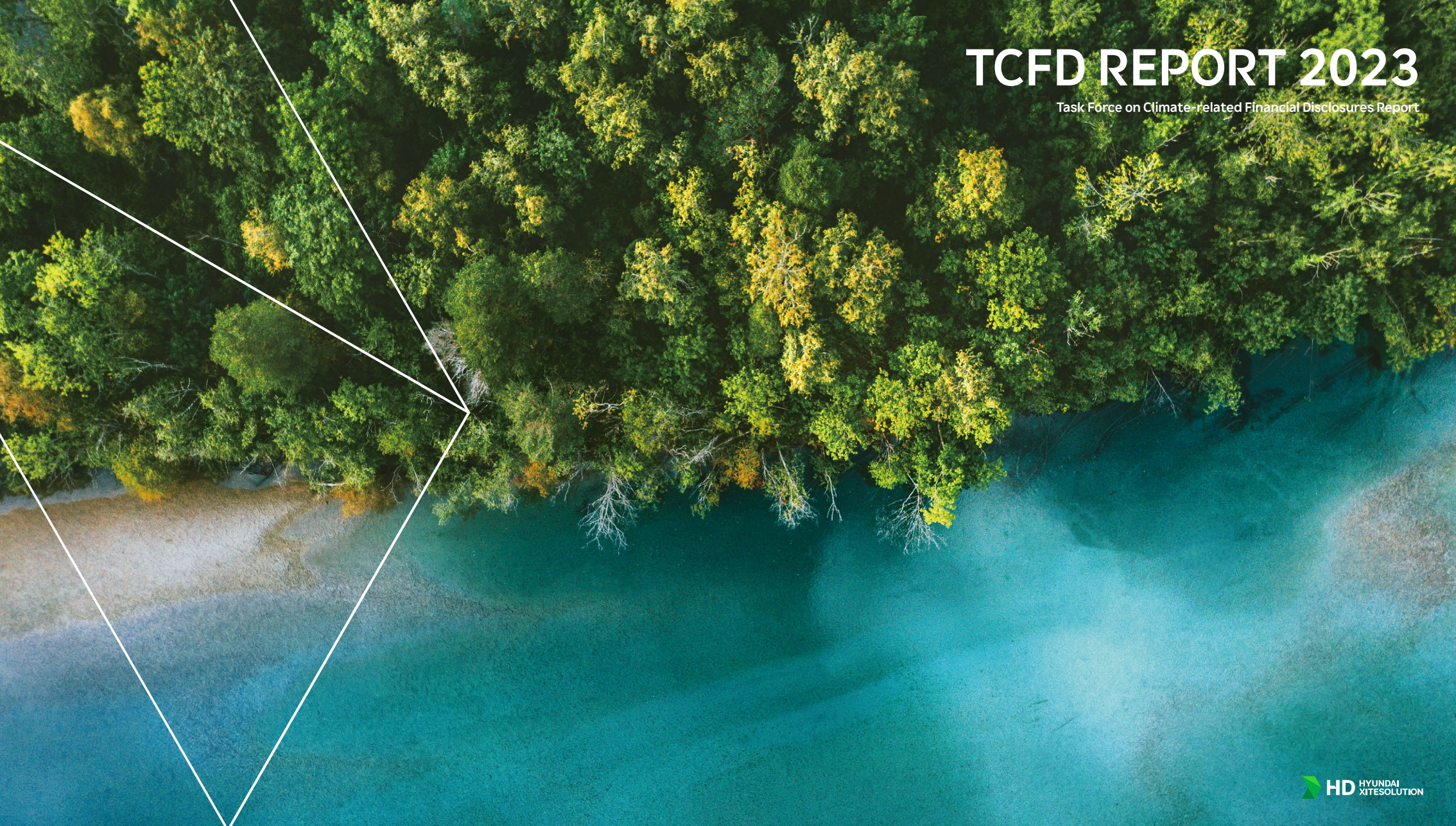


# TCFD REPORT 2023

Task Force on Climate-related Financial Disclosures Report

HD HYUNDAI XITESOLUTION

# About This Report

Companies confront new challenges and opportunities due to market changes, changes in laws and regulations, increased emphasis on social responsibility, and other factors resulting from climate change. The three companies (HD Hyundai XiteSolution, HD Hyundai Construction Equipment, HD Hyundai Infracore) in the HD Hyundai Construction Equipment Sector believe that identifying climate-related risks and opportunities, and disclosing their climate change response strategy transparently will support stakeholders' decision-making and contribute to the transition to a carbon neutral society.
HD Hyundai Construction Equipment Sector has published a second TCFD report to enhance the level of disclosure related to climate change and to express its commitment and efforts towards climate change response. This report is based on the TCFD Framework and includes targets and strategies to achieve Net Zero within the HD Hyundai Construction Equipment Sector.
The activities, events, and phenomena described in this report are based on predictive information about plans and financial performance at the time of the report's creation and are based on assumptions related to various future business environments. While the Sector has meticulously formulated plans and assumptions based on the analysis of external circumstances and internal strategy, it is essential to acknowledge the possibility of fluctuating outcomes resulting from changes in the surrounding environment. Additionally, this report incorporates potential risks, uncertainties, and other factors that may result in significant disparities between projected and actual results. These should be taken into consideration as a point of reference.

**Reporting Scope** HD Hyundai Construction Equipment Sector : Domestic and overseas worksites

**Reporting Period** The reporting covers performance from January 1, 2023, to December 31, 2023. It also includes contents from the first half of 2024 to show significant performance.

# Contents

# CEO Message

## Dear Customers and Stakeholders,

## I would like to express my sincere gratitude for your continued interest and support of HD Hyundai Construction Equipment Sector.

HD Hyundai Construction Equipment Sector is continuously enhancing and implementing our mid-to-long-term climate response strategies to effectively address the increasingly stringent regulations and challenges of climate change, while maximizing our business capabilities. In November of last year, we became the first in the global construction equipment industry to join RE100 initiative. Our intermediary holding company, HD Hyundai XiteSolution, along with our subsidiaries, HD Hyundai Construction Equipment and HD Hyundai Infracore, collectively committed to achieve RE100 by 2040. This year, we have significantly increased the transparency of our Net Zero strategies and key climate-related metrics as publishing our second TCFD report.

Furthermore, the Sector has expanded the scope of our 2050 Net Zero goals to include additional worksites that were previously not disclosed. This reinforces our commitment to holding ourselves accountable for emissions during the operational phase. The Sector is also exploring various measures to achieve a low-carbon society transition, collaborating with our customers to reduce GHG emissions during the product use phase by 25% until 2040. To achieve this goal, we are restructuring the product portfolio to focus on electrification and fuel efficiency improvements. The Sector aims to increase the proportion of eco-friendly product sales to 92% until 2040 by accelerating new product and technology development including electrification, hydrogen, and fuel efficiency.

HD Hyundai Construction Equipment Sector has strengthened its governance framework for climate response through the ESG Committee under the Board of Directors and the ESG Management Committees of each company, clearly defining the roles and responsibilities of our internal members. Additionally, we have established processes to assess and manage climate-related risks, enabling us to understand the impact of climate change on our business and analyze potential financial impacts, thereby effectively managing both climate-related risks and opportunities.

HD Hyundai Construction Equipment Sector is committed to rising beyond being a national leader in the construction equipment industry to becoming a global top-tier company. We are dedicated to contributing to a sustainable future and a carbon-neutral society. We kindly ask for your continued advice and encouragement. Thank you.

CEO **Young Cheul Cho** **Dong Wook Lee**

# Our Business Profile

## HD Hyundai Construction Equipment Sector

HD Hyundai Construction Equipment Sector consists of an intermediate holding company, HD Hyundai XiteSolution, and its subsidiaries, HD Hyundai Construction Equipment and HD Hyundai Infracore. HD Hyundai Construction Equipment Sector is building a diverse product portfolio that includes excavators, loaders, special equipment, and industrial vehicles. It also engages in the engine, parts, service, and solution businesses that support these products. HD Hyundai Construction Equipment and HD Hyundai Infracore are advancing as global comprehensive construction machinery specialists, strengthening their independent brands and supplying construction equipment, various parts, utility equipment, and other products required at industrial sites. HD Hyundai XiteSolution collaborates with HD Hyundai Construction Equipment and HD Hyundai Infracore in development, sales, procurement, overseas operations, and other areas to create synergies with the aim of becoming a global leader in the construction equipment industry.

### Ownership Structure

**HD Hyundai XiteSolution**
Integrated R&D for future technology, manufacturing of industrial vehicle and components

| HD Hyundai Construction Equipment 33.12%* | HD Hyundai Infracore 32.98% |
|---|---|
| Manufacturing of construction equipment | Manufacturing of construction equipment and engines |

(Unit: KRW million, consolidated basis)

| Company | Sales | Operating Profit |
|---|---|---|
| HD Hyundai XiteSolution | 8,748,217 | 724,209 |
| HD Hyundai Infracore | 3,824,967 | 257,228 |
| HD Hyundai Construction Equipment | 4,659,605 | 418,264 |

* Shareholding ratio changed to 34.62% as of April 30, 2024, due to the retirement of HD Hyundai Construction Equipment's treasury stock

### HD Hyundai MISSION & VISION

We pioneer the future through leading innovations and relentless challenges

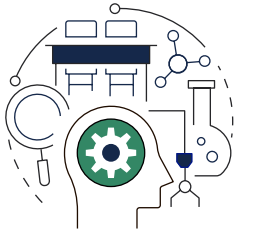
**Realizing the infinite potential of the ocean**

We lead the marine mobility and eco-friendly energy industries based on electrification, automation technologies, and digital platforms, pioneering new opportunities at sea.

**Implementing a sustainable future energy ecosystem**

We lead the global transition to decarbonization through developing next-generation clean energy technologies, expanding value chain capabilities of future key energy sources such as hydrogen, and innovating advanced composite material technologies.

**Providing industry solutions that transcend time and space**



We significantly expand the scope of industrial solutions by integrating artificial intelligence and robotics technologies, contributing to the safety and efficiency of industries.

# Our Business Profile

## HD Hyundai XiteSolution

**Total Solution Provider**
We aim to provide comprehensive solutions for construction, industry, and sites.

HD Hyundai XiteSolution, established in February 2021, is the intermediate holding company of HD Hyundai Construction Equipment Sector, with HD Hyundai Construction Equipment and HD Hyundai Infracore as its subsidiaries. In March 2023, the company changed its name from Hyundai Genuine to HD Hyundai XiteSolution.
HD Hyundai XiteSolution leads the development of advanced technologies in the construction equipment sector, including electrification, automation, and construction site solutions, etc. It also oversees sustainable procurement and sales to create synergies within the HD Hyundai Construction Equipment Sector. Additionally, the company manufactures and sells industrial vehicles such as forklifts and skid loaders, as well as construction equipment components like MCVs and transmissions, fulfilling its role as a business holding company.

| | |
|---|---|
| CEO | Young Cheul Cho, Dong Wook Lee |
| Year of establishment | 2021 |
| Address | 13F, 477 Bundangsuseo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea |
| Business | Manufacturing other machinery and equipment |
| Production capacity | Manufacturing over 24,000 units of industrial vehicles annually and components |
| Number of employees | 1,139 |

* Based on 2023 Consolidated ESG Report

## HD Hyundai Construction Equipment

**Building a Comfortable Tomorrow**
We are the foundation of a more comfortable tomorrow for everyone.

HD Hyundai Construction Equipment is a comprehensive construction equipment company that produces a wide range of construction equipment, including excavators, wheel loaders, backhoe loaders, and skid loaders, etc. It started as the mid-sized machinery division of HD Hyundai Heavy Industries in 1985. On April 1, 2017, it was established as a separate entity through spin-off from the Hyundai Heavy Industries
With the goal of producing world-class construction equipment, HD Hyundai Construction Equipment focuses on advancement of product by prioritizing driver-centered convenience in models such as excavators, wheel loaders, etc. Additionally, it is accelerating efforts in the development of future eco-friendly energy solutions, including electric excavators, hydrogen excavators, etc.

| | |
|---|---|
| CEO | Cheol Gon Choi |
| Year of establishment | 1985 |
| Address | 11F, 477 Bundangsuseo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea |
| Business | Manufacturing equipments for construction and mining industries |
| Production capacity | Over 40,000 units of construction equipment annually |
| Number of employees | 3,940 |

* Based on HD Hyundai Construction Equipment 2023 Integrated Report

## HD Hyundai Infracore

**Powered by Innovation**
We create infinite business opportunities based on ceaseless innovation.

HD Hyundai Infracore, established in 1937, has continuously grown to become Korea's leading construction equipment company, producing construction equipment, engines, various attachments, and utility equipment, etc. In 2021, it was incorporated into HD Hyundai Construction Equipment Sector, and it was renamed HD Hyundai Infracore in 2023.
The construction equipment business of HDHyundai Infracore possesses a comprehensive line-up encompassing excavators, wheel loaders, articulated dump trucks, and other equipment and operates within a global network for production, sales, and distribution. The engine division provides a total solution with a full line-up of high quality and specification engines, which comply with increasingly stringent environmental regulations.

| | |
|---|---|
| CEO | Young Cheul Cho, Seung Hyun Oh |
| Year of establishment | 1937 |
| Address | 489 Injung-ro, Dong-gu, Incheon, Republic of Korea |
| Business | Manufacturing and sales of construction equipment and engines |
| Production capacity | Over 30,000 units of construction equipment, and 150,000 units of engines annually |
| Number of employees | 4,606 |

* Based on HD Hyundai Infracore 2023 Integrated Report

# Our Business Profile

## Global Network

The HD Hyundai Construction Equipment Sector is growing as a global leading company based on continuous technological innovation and network expansion. The Sector has established a global dealer network in over 140 countries and has been recognized for its excellence in the global market. It achieves this by supplying high-quality products through production facilities in China, Norway, India, and Brazil. In addition to domestic production, the Sector is strengthening its global flexible production[1] hubs and maximizing global production efficiency by standardizing manufacturing technologies and operational systems for each facility. The global production and network strategy to respond to changes in the construction equipment market will continue in the future.

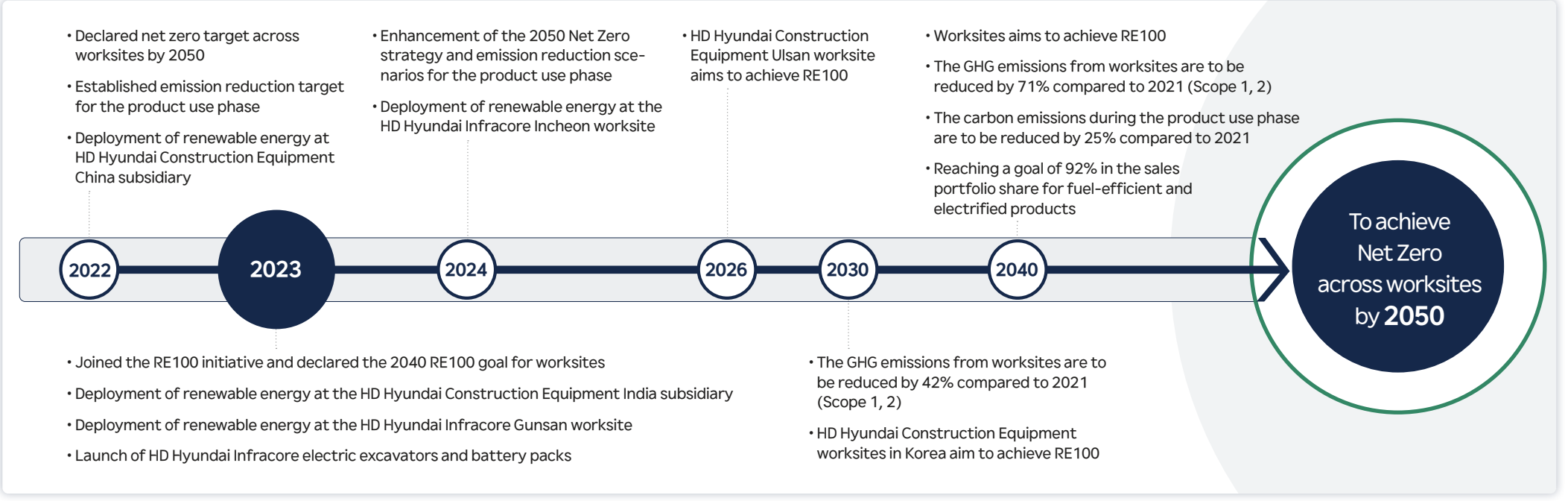

| Overall production capacity | HD Hyundai XiteSolution | HD Hyundai Construction Equipment | HD Hyundai Infracore |
|---|---|---|---|
| **94 thousand units annually** | **Production facilities in 2 countries** (Korea, China) | **Production facilities in 4 countries** (Korea, China, India, Brazil) | **Production facilities in 3 countries** (Korea, China, Norway) |

1) Flexible production: The concept of producing products in overseas factories with the same appearance, performance, and quality as those produced at the headquarters.

# Our Journey Towards Climate Action

## Climate Action of The HD Hyundai Construction Equipment Sector

HD Hyundai Construction Equipment Sector has declared a target of achieving Net Zero across worksites by 2050 and has actively participated in the global climate change response by publishing the first TCFD report in the domestic construction equipment industry. In 2024, the Sector has made various efforts to transform to a global lower carbon society, including advancing strategies for Net Zero in worksites, reducing emissions from product use phase, and expanding the range of Scope 3 disclosures. To achieve Net Zero across worksites by 2050 and reduce emissions by 25% in the product use phase by 2040, the Sector is implementing several measures including transition to renewable energy and expanding the fuel-efficient and electrified product portfolio, etc. HD Hyundai Construction Equipment Sector will refine its management systems and goals for climate-related risks and opportunities, while also enhancing communication with both internal and external stakeholders.



# Governance & Climate-related Risk Management

In order to effectively manage climate-related risks and opportunities and to lead the transition to a carbon neutral society, the HD Hyundai Construction Equipment Sector has established and operates a systematic governance system. HD Hyundai Construction Equipment Sector clearly defines roles and responsibilities for executives and employees to ensure practical efforts in responding to climate change. Furthermore, the HD Hyundai Construction Equipment Sector implements a climate-related risk management system to comprehensively address and mitigate the negative impacts of climate change throughout the entire company. Through the system, potential risks are identified, and preemptive responses are taken.

## Governance

### Oversight of the Board of Directors

The Board of Directors of HD Hyundai fulfills its role and responsibility as the highest decision-making body by deliberating on key issues and making resolutions, thereby laying the foundation for the establishment and expansion of a sustainable business model.

HD Hyundai Construction Equipment Sector has established and operates the ESG Committee under the Board of Directors to oversee major climate-related risks and opportunities. The ESG Committee is responsible for approving the Sector's climate change response strategy.

Both HD Hyundai Construction Equipment and HD Hyundai Infracore hold one regular annual meeting as a principle, with ad hoc meetings convened when necessary, to receive reports on ESG-related issues including climate change. They review agenda items, discuss issues and policies, and make a final decision on the matters deliberated. HD Hyundai XiteSolution oversees the ESG Committees of each company, the Product & Technology Strategy Committee, and reports key climate-related matters to the HD Hyundai Group ESG Committee.

Through a robust governance system led by the Board of Directors, the HD Hyundai Construction Equipment Sector aims to expand its role and responsibilities for sustainable growth.

**Climate-related Governance Structure**

| HD HYUNDAI Group | |
|---|---|
| ESG Committee | CEO and 3 outside directors |
| ESG Management Council | Group ESG Chief Officer, ESG Chief Officers for each company |
| ESG Working Council | Affiliates' ESG Teams |

**HD Hyundai Construction Equipment Sector**

| | | |
|---|---|---|
| Board of Directors | ESG Committee (HD Hyundai Construction Equipment, HD Hyundai Infracore) | |
| | Composition | CEO and outside directors |
| | Frequency | Once a year (ad hoc meetings if necessary) |
| | Responsibilities | • Approval on ESG and climate change response strategy<br>• Management of key climate-related risks & opportunities |
| Management Council (C-Level) | ESG Management Committee | Product & Technology Strategy Committee |
| | Composition: CEO, key HQ/Division heads | Composition: CEO, key executives responsible for product and technology development |
| | Frequency: More than 3 times a year | Frequency: Once a year |
| | Responsibilities:<br>• Selecting and monitoring ESG&Climate initiatives (GHG emissions reduction, ESG assessments, ESG Information disclosure, etc.)<br>• Discussing ESG & Climate issues | Responsibilities:<br>• Approving product & technology portfolio roadmap<br>• Formulating eco-friendly products strategy<br>• Developing integrated product & technology strategy and digital technology strategy, etc. |
| ESG Working Council | ESG Team | Environmental Division / Product & Technology Division |
| | • Formulating ESG & climate initiative and collaborating with relevant departments<br>• Managing ESG & climate performances and supporting executives' decision making<br>• Stakeholder communication and ESG assessment response | • Managing GHG emissions and energy consumption<br>• Managing eco-friendly product development and portfolio |

Governance

## Roles and Responsibilities of Management

HD Hyundai Construction Equipment Sector operates an ESG Management Committee, with the CEO serving as the chairman. Key executives of the Sector participate in the ESG Management Committee by selecting and executing strategic climate-related initiatives such as Net Zero and RE100. The outcomes of the activities of the ESG Management Committee's activities are periodically reported to the CEO of HD Hyundai XiteSolution.

Furthermore, the Product Strategy Committee and the Technology Strategy Committee meetings are held once a year respectively, to make decisions regarding eco-friendly product/technology development strategy. HD Hyundai XiteSolution proactively develops new and future technologies related to HD Hyundai Construction Equipment and HD Hyundai Infracore. Key discussion topics are being reported to the Board of Directors of each company.

HD Hyundai Construction Equipment Sector sets the performance evaluation of the CEO and related executives, as well as the key performance indicators related to the climate change response strategy, at 5~10%. Key performance indicators are established to evaluate performances related to major roles and responsibilities, such as energy consumption, GHG emissions, revenue from eco-friendly products, and the technology development of eco-friendly products.

## Roles and Responsibilities of ESG WorkingGroup

HD Hyundai Construction Equipment Sector, through its ESG team, collaborates across worksites to manage climate-related issues. In the Environmental Division, it carries out tasks such as renewable energy transition and energy consumption monitoring, etc. In the Product & Technology Division, market trends for eco-friendly products are forecasted, and product sales plans are adjusted considering market changes and technological developments. The performances and related issues of the ESG Working Council are reported to the ESG Management Committee.

### Key Agenda of ESG Committee

| Company | Time | Agenda |
|---|---|---|
| HD Hyundai Construction Equipment | 2023. 1Q | Reporting on the Materiality Assessment for ESG |
| | 2023. 3Q | Reporting on ESG Management Committee results and second-half plans<br>Approval of Publication of Integrated ESG Report |
| | 2023. 4Q | Reporting on 2023 ESG performances<br>Approval of 2024 ESG execution plan |
| | 2024. 1Q | Reporting on the Materiality Assessment for ESG |
| HD Hyundai Infracore | 2023. 1Q | Approval of reporting 2023 ESG execution plan<br>Approval of Environmental Management Policy |
| | 2023. 4Q | Reporting on 2023 ESG performances |
| | 2024. 1Q | Approval of reporting 2024 ESG execution plan<br>Reporting result review of the ESG Materiality Assessment |

### Key Agenda of ESG Management Committee in the HD Hyundai Construction Equipment Sector

| Category | Agenda |
|---|---|
| Net Zero in worksites | Identification and expansion of GHG reduction initiatives at worksites |
| | Review of RE100 implementation status and introduction of renewable energy (PPA contracts, introduction of on-site solar power, etc.) |
| Product use phase emission reduction | Lower carbon and alternative fuel products |
| | Development of products and technologies related to electrification |
| | Development of future power equipment |
| | Management of eco-friendly sales and investment costs |

## Climate-related Risk Management

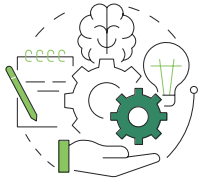
### Climate-related Risk Management System

HD Hyundai Construction Equipment Sector has established a process to evaluate and manage climate-related risks, which is integrated across the Sector's business risk management system. Through the process, key climate-related risks that could impact business and operations are identified, and scenario analysis is used to assess potential financial impacts and to develop response strategies. These strategies are implemented in collaboration with relevant departments, and continuous performance monitoring is conducted to develop improvement measures. Key climate-related risks are reported to the Executives and the Board of Directors and are reflected in the execution plans for the following years.

#### Climate-related Risk Management Process

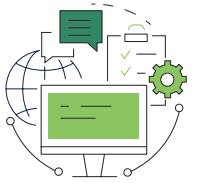
**1 Risk Identification and Establishment of Response Strategy**

HD Hyundai Construction Equipment Sector considers various factors such as likelihood of occurrence, impact, etc., to identify key climate-related risks. Potential financial impacts are also assessed based on climate scenarios such as IPCC, IEA, NGFS, etc.
Strategies related to climate change response and eco-friendly products and technologies for addressing climate-related risks are reported to the Executives. These strategies are then pursued with final approval from the Board of Directors.



**2 Risk Management and Derivation of Detailed Implementation Task**

Key climate-related risks are prioritized based on the assessed impact during '① Risk Identification and Establishment of Response Strategy' stage, and suitable response tasks are reviewed.
HD Hyundai Construction Equipment Sector appoints responsible executives and employees for each department, assigning risk response tasks accordingly. These tasks are then reflected in key performance indicators.



**3 Performance Monitoring and Implementation Review**

HD Hyundai Construction Equipment Sector is monitoring performance and checking indicators to ensure that key climate-related risk response strategies and detailed tasks are being appropriately implemented according to the plan.
Analysis of response strategies for key climate-related risks, tracking of detailed tasks, and monitoring performance help highlight areas for improvement and guide to the development of implementation tasks.

**4 Reporting and Update**

The progress and performance monitoring results, along with improvement measures, are reported to the Executives and the Board of Directors at least once a year.
HD Hyundai Construction Equipment Sector evaluates the impact of potential risks beyond those previously identified climate-related risks. The impact of these risks is evaluated and incorporated into the current risk response plans.

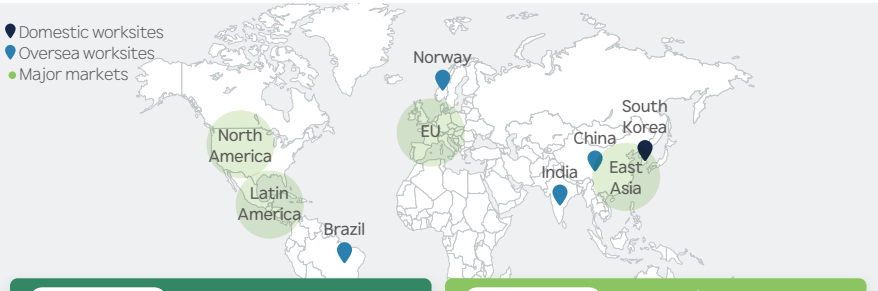
# Climate-related Risks & Opportunities

HD Hyundai Construction Equipment Sector is facing various environmental changes, including physical damage caused by extreme weather events and demands from external stakeholders to address climate change. Thus, the HD Hyundai Construction Equipment Sector is identifying climate-related risks and opportunities that could potentially impact its business and operational strategies through the implementation of climate scenario analysis.
Based on the analysis results, the Sector plans to establish and continually manage strategies that minimize the negative impacts of climate-related risks and maximize the positive impact of climate opportunities.

## Climate-related Risks & Opportunities Assessment Overview

Strengthened climate change regulations and policies, along with changes in the construction equipment market dynamics, pose significant risks and opportunities for the HD Hyundai Construction Equipment Sector. To proactively address these risks and opportunities, an assessment regarding the climate change impact was conducted. To this end, the Sector has analyzed anticipated climate changes in the construction equipment industry from both operational and business viewpoints, and has reviewed various response strategies from short, medium, and long-term perspectives. Key issues include the increased demand for low-carbon products and services, emission regulations, and country-specific climate related policies. For instance, the growing demand for eco-friendly products presents an opportunity for revenue growth, while failure to meet stakeholders' requirements and demands could pose a risk.

### Scope of Assessment




| Operation | Domestic/Oversea Worksites | Business | Major Markets |
|---|---|---|---|
| Domestic and oversea worksites<br>• Considered vulnerability of physical risk for each worksite, circumstance of energy procurement, request for emission reduction from stakeholders, etc. | | Advanced (North America, EU, etc) & emerging economies (China, Brazil, etc.)<br>• Considered engine regulations for construction equipment by country, emission regulations at construction sites, market trends by country, and infrastructure, etc. | |

HD Hyundai Construction Equipment Sector analyzed risks and opportunities while considering the geographical, social, and economic characteristics of each region for domestic and oversea worksites. Additionally, the Sector conducted climate change policy and market condition analysis for major markets to comprehensively assess the impact from operational and business perspectives.

### Assessment Timeline

| | Short-term (2023-2024) | Medium-term (2025-2029) | Long-term (2030-) |
|---|---|---|---|
| Changes in external environment | • Increasing in price of emission allowance<br>• Increasing demand of eco-friendly construction equipments<br>• Changes in RE100 implementation policies | | • Increase in frequency of extreme climate event<br>• Reinforcement of emission-related regulations in the construction equipment industry |
| Strategy for business and climate response | Establishment of GHG emission reduction roadmap for worksites and product use phase | Develop sales strategy for fuel efficiency improvement products to comply with emission reduction requirements in short- and medium-term | Develop sales strategy for electrified products to comply with emission reduction requirements in short- and medium-term |

The Sector established short-term, medium-term, and long-term milestones based on the implementation timelines of its business strategy and GHG reduction roadmap. The Sector analyzed climate change issues by reflecting expected external environmental changes for each set period. Based on these results, efforts are focused on minimizing risks and maximizing opportunities by enhancing the climate change response strategy.

## Climate-related Risks & Opportunities Assessment Methodology

### Assessment Process

**STEP 1** Identifying a pool of climate-related risks and opportunities

Risks + Opportunities

* (Risk) Physical risk, Transitional risk
* (Opportunity) Product and services, Market, Resource efficiency, Energy sources

In order to identify a pool of climate-related risks and opportunities that may impact the HD Hyundai Construction Equipment Sector, the Sector conducted a thorough review of market trends and the status of climate change responses in comparable industries. Specifically, the Sector examined domestic and international climate change policies, regulations, as well as the climate change response status in the construction equipment and automobile industries.
As a result, the Sector identified 36 risks and opportunities. Considering its business model, strategy, and industry characteristics, the Sector ultimately derived 19 factors for the next comprehensive assessment.

**STEP 2** Prioritizing key climate-related risks and opportunities

Business impact + Likelihood

* (Business Impact) Analysis on revenue, GHG emission, stakeholder requirements
* (Likelihood) Analysis on probability of occurrence, duration, response capabilities

The Sector completed a comprehensive assessment to determine the potentially significant impacts, taking into account both the business impact and the likelihood of all 19 identified risks and opportunities.
The business impact assessment considered not only the revenue impact but also GHG emissions and stakeholder requirements. Likelihood assessment encompassed the probability of occurrence, duration after occurrence, and response capability of the Sector[1]. Thus, a total of nine risks and opportunities that require a full response and attention were identified.

**STEP 3** Assessing financial impact

Climate scenario analysis

* (Physical risk) IPCC scenarios
* (Transitional risk) IEA, NGFS scenarios
* (Opportunity) Internal fuel efficient & electrified product sales scenarios

The Sector conducted a financial impact assessment on the climate-related risks and opportunities that it should focus on in the medium to long term. Physical risks and transition risks were evaluated based on internal sales scenarios and climate scenarios provided by global institutions such as IPCC, IEA, and NGFS[2]. Opportunities were analyzed based on the IPCC scenarios and internal fuel-efficient and electrified product sales scenarios. Based on the analysis, the Sector aims to proactively respond and adapt to climate change, as it will have a medium to long-term impact on the business.

1) Utilized Jupiter Intelligence for assessing the financial impact of physical risks
2) IPCC (Intergovernmental Panel on Climate Change, IEA (International Energy Agency), NGFS (Network for Greening the Financial System)

## Climate-related Risks & Opportunities Assessment Methodology

### Climate Scenario Analysis

HD Hyundai Construction Equipment Sector conducted a climate scenario analysis to understand the impact of climate change on the business and its potential financial implications. By utilizing scenarios provided by the IPCC, IEA, and NGFS, the Sector analyzed financial impacts. The Sector made efforts to ensure the reliability of the analysis by considering various scenarios, ranging from gradual climate mitigation to worsening climate crises caused by unrestrained development. To enhance the accuracy, special emphasis was placed on applying appropriate scenarios for different types of climate-related risks and opportunities. Specifically, the Sector utilized IPCC scenarios (SSP scenario) for physical risks, IEA and NGFS climate scenarios along with internally developed scenarios for transition risks. The Sector utilized internally developed sales scenarios based on IPCC scenarios (RCP scenario) for climate-related opportunities. HD Hyundai Construction Equipment Sector plans to continuously improve its results by applying scenarios that are most suitable, taking into account the changing global responses to climate change.

#### IPCC Scenarios
Physical risk analysis

Presents RCP scenarios that consider radiative forcing based on $CO_2$ concentration and SSP scenarios based on global climate change adaptation and mitigation efforts.

**Purpose of Selection**

Selected the SSP scenario that reflects actual GHG reduction efforts by countries and the degrees of social and economic changes

| Scenario | Assumption | Average Temperature Rise (2100) |
|---|---|---|
| SSP 1-2.6 | Assume the development of clean technology to minimize fossil fuel use and promote sustainable economic growth | +1.8℃ |
| SSP 2-4.5 | Assume mitigation of climate change and moderate social and economic development | +2.7℃ |
| SSP 5-8.5 | Assume rapid industrial growth with significant fossil fuel usage | +4.4℃ |

#### IEA Scenarios
Transition risk/opportunity analysis

Presents total of three scenarios including future price trends of energy sources based on climate policy directions and the application of clean technologies

**Purpose of Selection**

Selected all three scenarios to incorporate annual energy price estimation data presented in the IEA's World Energy Outlook

| Scenario | Assumption | Carbon price (2050, /$tCO_2$) |
|---|---|---|
| NZE | Assume fossil fuel replacement by 2030, Net Zero expected by 2050 (+1.4℃) | $250 |
| APS | Despite the targets announced by governments, expect to achieve a 40% GHG reduction by 2050 (+1.7℃) | $200 |
| STEPS | Assume the maintenance of the current policy direction and plans that are already underway (+2.4℃) | $89 |

#### NGFS Scenarios
Transition risk/opportunity analysis

Presents four low-carbon transition pathways and eight scenarios based on the intensity and timeline of climate policies. Also, three assessment models that consider carbon reduction levels and technology advancements

**Purpose of Selection**

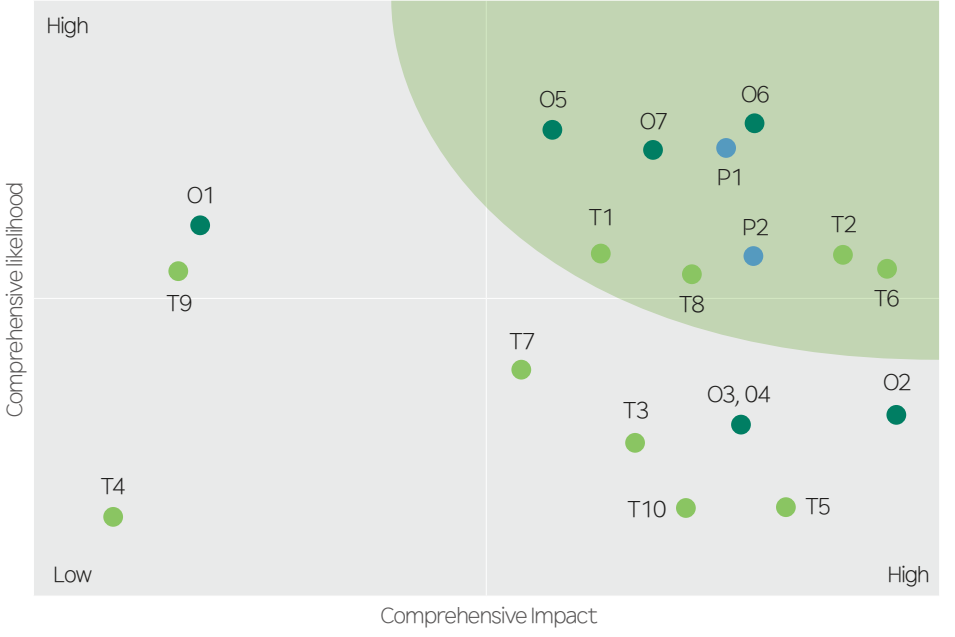
Selected three distinct scenarios from each transition pathway to apply electricity price trends provided by the GCAM 6.0 model

| Scenario | Assumption | Electricity price (2050, /MWh) |
|---|---|---|
| NZE 2050 | Assume achievement of net zero by 2050 (+1.4℃) | $165 |
| Delayed Transition | Assume the continuation of current policies until 2030 and strong measure will be implemented to achieve net zero (+1.6℃) | $160 |
| NDC | Assume the implementation of each country's efforts to address climate change to achieve their respective goals (+ 2.6℃) | $136 |

# Climate-related Risks & Opportunities Assessment Result

## Key Result from Assessment

Based on a comprehensive impact and likelihood assessment, the Sector identified a total of 12 major risks and 7 opportunities with potential impacts on the HD Hyundai Construction Equipment Sector. For physical risks, wind, flood, heat, and drought are expected to affect operations at worksites including overseas production facilities. Among transition risks, the strengthening of the Korean Emission Trading System (K-ETS) and delays in the renewable energy transition are predicted to impact the Sector in the medium to long-term. Opportunities include increased demand from customers and markets for lower carbon products, which is expected to contribute to revenue growth. The sector is striving to mitigate operational risks posed by climate change while enhancing its business capabilities.




| Area | | | Definition |
|---|---|---|---|
| Physical Risk | Acute | P1 | Damage to asset values and worksites caused by acute weather events such as wind, flood, etc. |
| | Chronic | P2 | Damage to asset values and worksites may occur as a result of chronic weather patterns such as heat, drought, etc. |
| Transitional Risk | Technology | T1 | Increase of competitive weakness due to widening gap in eco-friendly (electrification) technology compared to competitors |
| | | T2 | Decrease in market share of conventional engine products due to replacement with lower carbon engines |
| | Market | T3 | Stagnation in demand for electrified products due to different market conditions such as government incentives, infrastructures, etc |
| | | T4 | Production disruption due to unstable electricity supply at overseas worksites |
| | | T5 | Increased market uncertainty due to the market size of eco-friendly products, speed of innovation, and industry standards |
| | | T6 | Increase in electricity costs in medium to long-term caused by delays in renewable energy transition |
| | Policy and legal | T7 | Increased uncertainty in achieving RE100 by 2040 due to volatility in domestic RE100 policies |
| | | T8 | Reinforcement of the domestic emission trading scheme and increase in allowance price |
| | | T9 | Reinforcement of mandatory GHG emissions reporting regulations |
| | Reputation | T10 | Increased negative reputation due to failure on lower carbon transition such as Net Zero, RE100, etc. |
| Opportunity | Market | O1 | Expansion of eco-friendlly construction equipment market due to strengthened regulations on air pollutants (NOx, PM) |
| | | O2 | Expansion of supportive policies such as investments and incentives while the government drives the lower carbon social/economic transition at the national level |
| | Resource efficiency | O3 | Improvement of energy efficiency in the production process at worksites |
| | | O4 | Improvement of energy efficiency in worksites |
| | Product and services | O5 | Increased demand for construction equipment with technologies of fuel efficiency improvement applied for medium to long-term emission reduction |
| | | O6 | Increased demand for construction equipment with electrified technology applied for long-term emission reduction |
| | | O7 | Increased demand for ICT (automation) construction equipment due to the rise in disaster recovery sites |

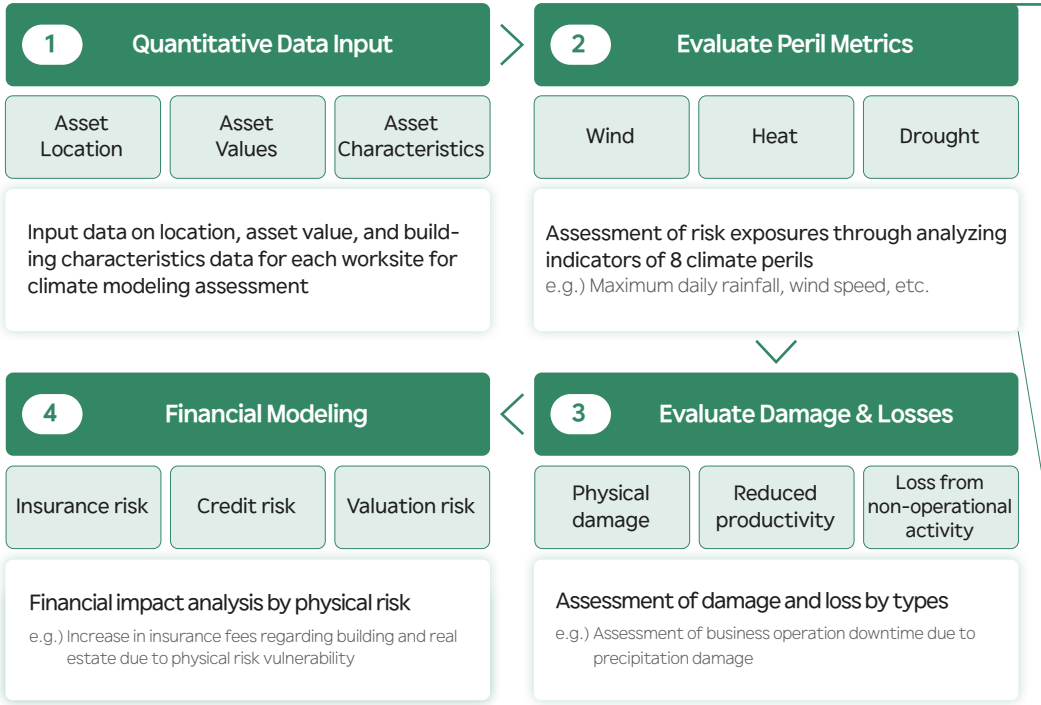
* HD Hyundai Construction Equipment Sector defined eco-friendly products as those incorporating clean technologies (power conversion, fuel efficiency, etc.) to meet the regulations.

Climate-related Risks & Opportunities Assessment Result

## Result of Physical Risks Assessment (1/3)

HD Hyundai Construction Equipment Sector utilized Jupiter Intelligence to assess the impact of physical risks such as floods, drought, and heat on key business locations due to climate change. The tool quantitatively evaluated the physical risk exposure and financial impact of eight types of perils (wind, flood, precipitation, hail, heat, cold, fire, drought) on worksites using future weather prediction models based on the IPCC's SSP scenarios for climate change. Specifically, 15 domestic worksites of the HD Hyundai Construction Equipment Sector, including the headquarters, as well as 7 production facilities in 4 countries overseas, were assessed. The physical risks in the areas where the facilities are located were comprehensively considered.

### Process of Physical Risk Analysis Using Jupiter Intelligence




| Climate Peril | Peril Metric |
|---|---|
| Wind | • Maximum wind speed at return periods (10, 20, 50, 100, 200, 500-year) |
| Flood | • Water depth and nearby flooding at return periods (10, 20, 50, 100, 200, 500-year) |
| Precipitation | • Maximum daily total water equivalent precipitation at return periods (10, 20, 50, 100, 200, 500-year) |
| Hail | • Number of days per year where large hail (> 5 cm in diameter) is possible |
| Heat | • Days per year above 35°C, 38°C |
| Cold | • Days per year below 0°C, -10°C |
| Fire | • Number of wildfires expected in a 1km$^2$ per years |
| Drought | • Months per year where standardized precipitation evapotranspiration index is below -2 |

## Climate-related Risks & Opportunities Assessment Result

### Result of Physical Risks Assessment (2/3)

HD Hyundai Construction Equipment Sector conducted a physical risk assessment to accurately understand the impact of climate change on the Sector and to prepare in advance for potential damages. By conducting the assessment, the Sector clearly identified factors that could lead to physical risks at each worksite and reliably assessed changes in these risks over time. Specifically, the exposure of each worksite to 8 types of perils was assessed from 2020 to 2100 according to the IPCC's SSP5-8.5 scenario.

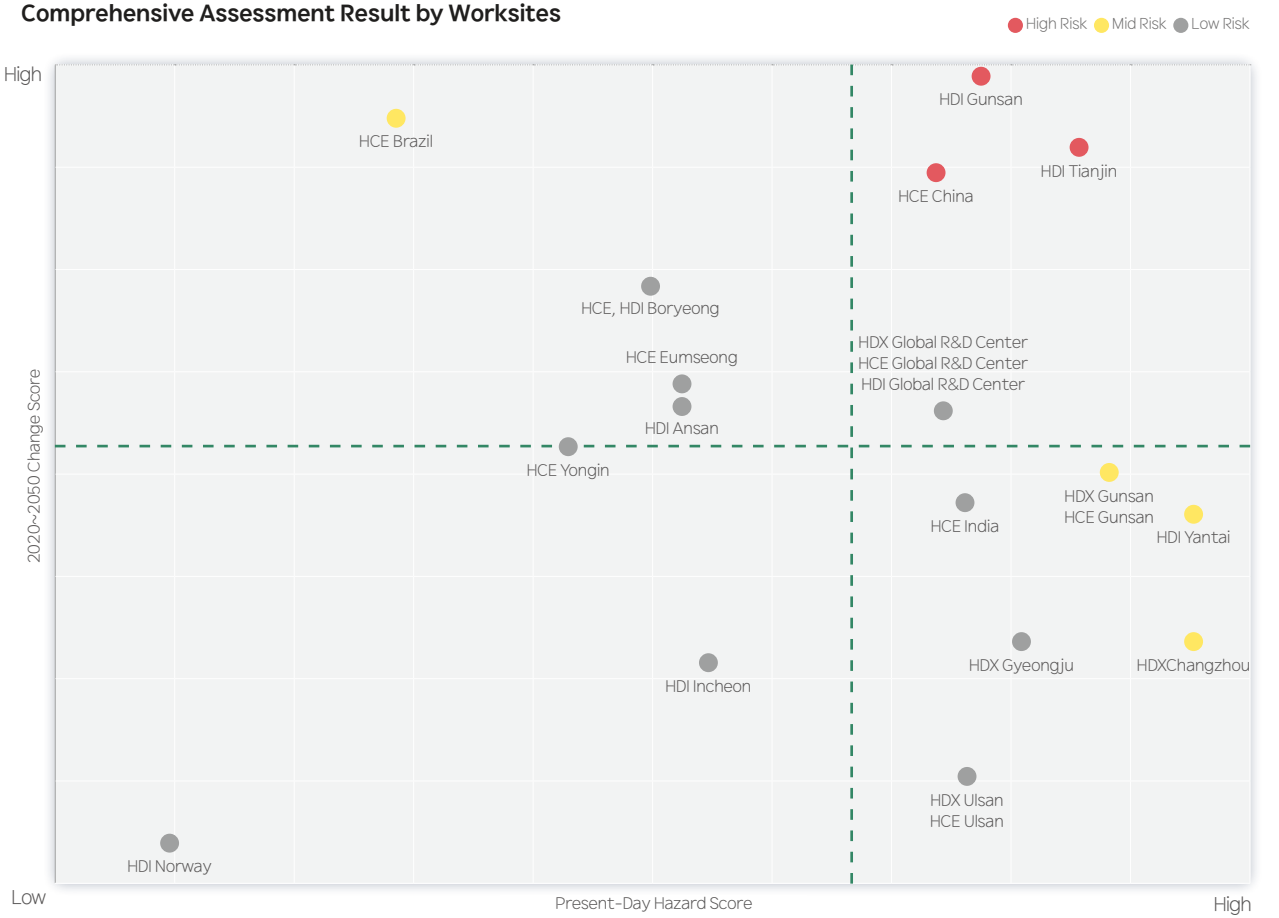
As a result, four sites (HCE Gunsan, HDI Yantai, HDX Gunsan, and HDX Changzhou) have been identified as requiring high-risk management currently and have been classified in the Mid Risk group, while one site (HCE Brazil) is expected to experience an increase in future risk and is also classified in the Mid Risk group.

Worksites classified in the High-Risk group, which currently have high risk and are expected to experience increased future risk, include three worksites: HDI Gunsan, HDI Tianjin, and HCE Jiangsu.

As a result of the comprehensive evaluation and prioritization, a total of eight worksites requiring detailed assessment and essential management have been identified. These worksites have a high likelihood of risk occurrence in the future, so proactive management measures, including medium to long-term strategies, are intended to be established.

* HDX: HD Hyundai XiteSolution, HCE: HD Hyundai Construction Equipment, HDI: HD Hyundai Infracore

**Comprehensive Assessment Result by Worksites**




* Source: Jupiter Intelligence

Climate-related Risks & Opportunities Assessment Result

## Result of Physical Risks Assessment (3/3)

Assuming the worst-case scenario (SSP5-8.5) where global temperatures rise by 4.4℃ compared to pre-industrial levels by 2100, a detailed analysis of the risk exposure revealed that all 8 high-priority worksites are highly impacted by acute physical risks such as wind and flood, as well as chronic physical risks such as heat and drought. Physical risk occurrences could lead to site facilities and infrastructure damage, resulting in additional financial losses due to operational disruptions during the restoration period. Based on the evaluation results of risk factors for the 8 worksites in the HD Hyundai Construction Equipment Sector, the average annual potential losses due to wind, flood, heat, and drought were assessed under the SSP5-8.5, SSP2-4.5, and SSP1-2.6 scenarios. The Sector is proactively developing response measures to prepare for potential damages considering climate change in the regions where worksites are located.

### Assessment Result for Highly Impacted Worksites

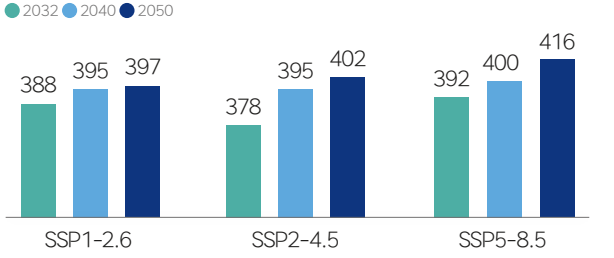
— Acute Risk — Chronic Risk ■ High ■ Medium ■ Low ■ Very Low

| Company | Worksite | Physical Risks | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Wind | Flood | Precipitation | Heat | Drought | Fire | Cold | Hail |
| HD Hyundai XiteSolution | Gunsan* | | | | | | | | - |
| | China | | | | | | | | - |
| HD Hyundai Construction Equipment | Gunsan* | | | | | | | | - |
| | China | | | | | | | | - |
| | Brazil | | - | | | | | | - |
| HD Hyundai Infracore | Gunsan* | | | | | | | | - |
| | Tianjin | | | | | | | | - |
| | Yantai | | | | | | | | - |

* The impact of flooding is assessed differently for each worksite, as the HD Hyundai Infracore Gunsan site is located near the coast, while the HD Hyundai XiteSolution and Hyundai Construction Equipment Gunsan site are relatively distant from the coast.

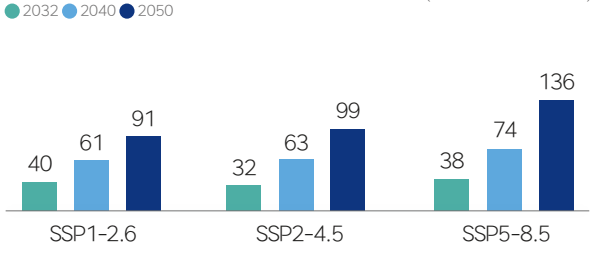
### Financial Impact of Acute Risk (wind, flood, etc.) (2032, 2040, 2050)

(Unit: KRW 100 million)




### Financial Impact of Chronic Risk (heat, drought, etc.) (2032, 2040, 2050)

(Unit: KRW 100 million)



## Climate-related Risks & Opportunities Assessment Result

## Result of Transition Risks Assessment

### Policy/legal — Reinforcement of the domestic emission trading scheme and increase in allowance price

**Impact**

Under the Korean Emission Trading System, HD Hyundai Infracore is designated as a regulated entity, while HD Hyundai Construction Equipment reports annual GHG emissions and energy usage to the government under the GHG Energy Target Management System (TMS). With the gradual reduction of free allocations, emission allowance prices are expected to rise, which could cause a risk to the HD Hyundai Construction Equipment Sector

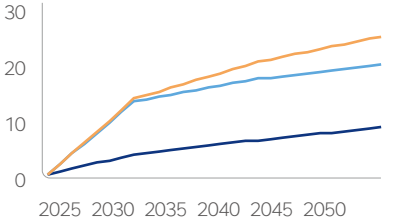
**Logic**

The financial assessment was based on the expected emissions allowance, free allocation ratio, excess emission allowance purchases, and emission allowance prices, according to the IEA's scenario.

- Steps: Maintaining current emission levels (2.4℃)
- APS: 40% reduction in emissions by 2050 (1.7℃)
- NZE: Net Zero by 2050 (1.4℃ )

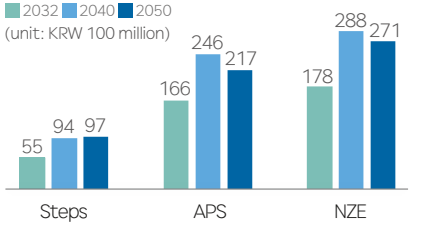
IEA Carbon Price Scenario

(South Korea, unit: USD/$tCO_2eq$)




**Result**

The Sector has established Net Zero targets and an implementation roadmap to reduce GHG emissions at worksites. To achieve Net Zero by 2050, the Sector is enhancing its response systems and strengthening its implementation capabilities through a phased reduction of GHG emissions.




### Market — Increase in electricity costs in medium to long-term caused by delays in renewable energy transition

**Impact**

As of 2023, emissions from electricity usage account for 70% of the Sector's Scope 1 and 2 emissions. Therefore, it is crucial to secure renewable energy sources to achieve Net Zero. Anticipated changes in the energy mix suggest that electricity prices may rise in various countries in the future. Any delay in transitioning to renewable energy could lead to higher medium- to long-term electricity procurement costs.

**Logic**

The financial assessment was based on the expected electricity usage and price using the scenarios provided by NGFS

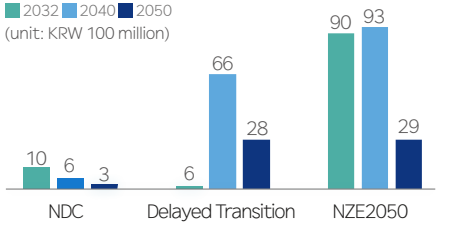
- NDC: Achieving Nationally Determined Contributions (2.6℃)
- Delayed Transition: Implementation of strong policies after 2030 (1.6℃)
- NZE2050: Net Zero by 2050 (1.4℃ )

NGFS Electricity Price Scenario (Unit: USD/MWh)

| Country | Scenario | 2030 | 2040 | 2050 |
|---|---|---|---|---|
| South Korea | NDC | 141 | 140 | 139 |
| | Delayed Transition | 100 | 160 | 144 |
| | NZE2050 | 151 | 166 | 142 |
| China | NDC | 111 | 111 | 116 |
| | Delayed Transition | 105 | 141 | 160 |
| | NZE2050 | 139 | 164 | 172 |

**Result**

In 2023, the Sector became the first in the construction equipment industry worldwide to join the global RE100 initiative, demonstrating its commitment to renewable energy transition. The Sector is utilizing renewable energy through onsite solar installations and PPAs at our worksites. Also, the Sector is striving to expand the available quantity of renewable energy by enhancing the Net Zero strategy for business operations..



Climate-related Risks & Opportunities Assessment Result

## Result of Transition Risks Assessment

### Technology — Increase of competitive weakness due to widening gap in eco-friendly technology (eletrification) compared to competitors

**Impact**

Global construction equipment competitors are leading the electrified construction equipment market and decarbonization investments by launching electrified models. Considering the trend, the Sector is intensifying efforts to develop eco-friendly models. However, if the Sector does not achieve competitive capabilities in terms of continuous product operating hours or prices, there is a risk that our revenue from electrified products may decline.

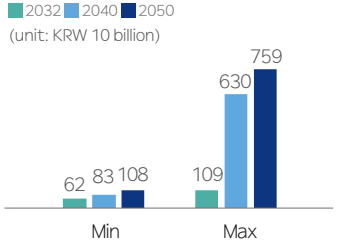
**Logic**

Financial impact was assessed based on the sales proportion of year-over-year fuel efficiency improvements (or electrified) within the total product sales portfolio, considering technological gaps with advanced companies. The sales volume of products is calculated using internally developed scenarios for medium-to-long-term enhancements in fuel efficient and electrified products.

- Min - Scenario assuming current sales levels are maintained
- Max - Scenario to achieve the 2040 goal of reducing emissions from product use phase

**Result**

The Sector is developing strategies and roadmap for electrified construction equipment, considering market dynamics and internal operational changes. The goal is to establish gradual steps for the development and commercialization of electrified products, aiming to enhance competitiveness. Also, the Sector is actively monitoring the market and customers' needs to supplement technical aspects such as extended operational hours and enhanced user convenience. Through proactive investment in electrified product and technology development, the Sector aims to increase customer purchasing power.




### Technology — Decrease in market share of conventional engine products due to replacement with lower carbon engines

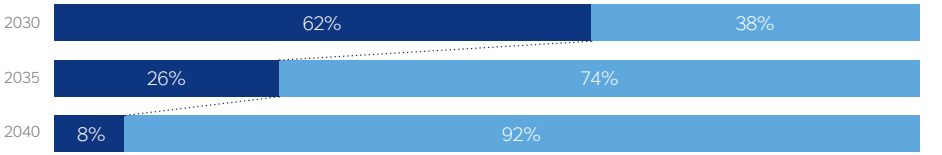
**Impact**

Given the current market trends, there is expected to be increased demand in the short-term for low-carbon engines that are integrated with fuel efficiency and hybrid technologies. Furthermore, focused management is crucial in advanced markets where demand for low-carbon engines is high. It is essential to proactively develop fuel efficiency technologies applicable to excavators and wheel loaders and introduce them to the market. Failure to do so could lead to a reduced market share or decreased revenue.

**Logic**

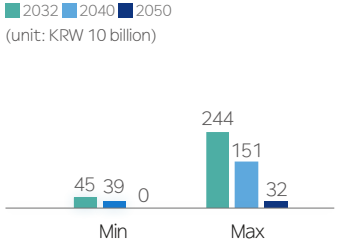
Internal Fuel efficient & Electrified product sales scenario

(Scenario based on achieving the 2040 goal of reducing emissions from product use phase)



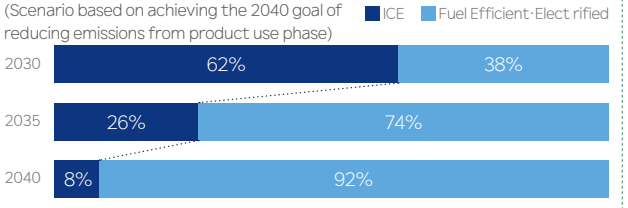
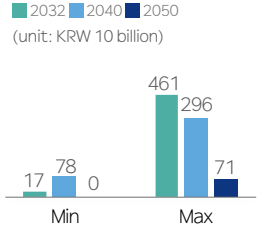
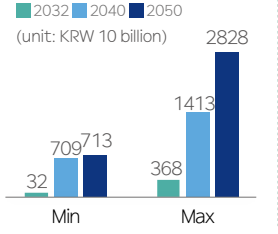
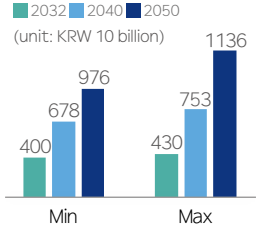

**Result**

The Sector is developing and applying various technologies such as electro-hydraulic technology, power transmission technology, and regulatory engine integration to contribute to improving the fuel efficiency of products and enhancing the performance of existing engines. The Sector aims to reduce carbon emissions during the product use phase and strives to increase sales of high-efficient and high-performance construction equipments.



Climate-related Risks & Opportunities Assessment Result

## Result of Opportunities Assessment

| | Product/Services: Increased demand for construction equipment with technologies of fuel efficiency improvement applied | Product/Services: Increased demand for construction equipment with electrified technology applied | Product/Services: Increased demand for ICT (automation) construction equipment due to the rise in disaster recovery sites |
|---|---|---|---|
| Impact | Low-emission construction zones are continuously expanding, particularly in the North American and EU markets. In the US, discussions are underway regarding the introduction of GHG regulations for off-road engines. By identifying the market and regulatory demands for low-carbon products, developing and selling fuel efficient models can lead to medium to long-term revenue growth. | In the United States, discussion is currently taking place about developing regulation for GHG emission from off-road engines and offering incentives for off-road products with zero emission. The Sector anticipates a rise in demand for fuel-efficient products in the near future. With stricter regulations and more incentives for off-road products, along with the expansion of zero emission zones, sales of electrified products may see an increase in the medium to long term. | As extreme weather intensifies, incidents are becoming more common at construction sites, and the forecast suggests an increase in disaster recovery sites due to abnormal weather patterns. Thus, there's an increasing demand for automated construction equipment that can operate in sites where human intervention is challenging. The Sector expects growth in sales of the company's automated products currently under development and production. |
| Logic | Financial assessment was based on annual sales volumes of each products (fuel efficient, electrified), selling price, etc. The sales volume of each product was estimated based on internal product sales scenarios* within the Sector. | Internal Fuel efficient & Electrified product sales scenario<br>(Scenario based on achieving the 2040 goal of reducing emissions from product use phase)<br>  | Financial assessment was based on annual sales volumes of automated products, product selling prices, and the growth rate of the disaster recovery market. The sales volume of unmanned products was estimated based on internal scenario in line with the IPCC RCP scenario.<br>• Min: Under the substantial implementation of GHG reduction policies (RCP 4.5)<br>• Max: Aligned with the current polices (RCP 8.5) |
| Result | To adapt to regulatory and market changes, the Sector has reorganized its product portfolio transformation strategy. Thus, the planning and production process is underway for fuel-efficient products.<br>  | In response to regulatory and market changes, the Sector has established a product portfolio transition strategy and committed to produce and sell electrified products to adapt to the rapidly evolving external environment.<br>  | To address the increasing demand for automated products, the Sector has formulated an ICT portfolio strategy. While the market is in its initial stages, the Sector plans to enhance its production and sales strategy as demand grows in the future.<br>  |

* Fuel efficient products will see expanded sales until 2035 for short to medium-term carbon reduction. Afterward, sales will gradually decrease as electrified product sales increase. Electrified products, aimed at medium to long-term carbon reduction, will be sold more prominently starting from 2030, with plans for further expansion after 2035 (Based on the enhanced scenario in 2024)

Climate-related Risks & Opportunities Assessment Result

## Climate-related Risks & Opportunities Assessment Summary

After identifying the major risks and opportunities posed by climate change and assessing their financial impact, the Sector has recognized operational risks at worksites from building/inventory asset damage and increased operating costs, as well as business opportunities. To minimize medium to long-term operational risks resulting from climate change and maximize business opportunities, the Sector has re-examined the existing "Net Zero at worksites" and "Reduction of carbon emissions during the product use phase". Reduction measures for each emission source at facilities have been detailed, and the implementation roadmap for reducing emissions during the product use phase has been adjusted, considering potential delays in entering the electrified construction equipment market compared to previous estimates. The Sector is progressively implementing appropriate measures, enhancing internal capabilities, and planning to monitor the status of net zero at facilities, as well as reducing product emissions.

Impact Level: High Medium Low

| Category | | Definition | Financial Impact | Short | Mid | Long | Range of Financial Impact (KRW 100 million)* | | Strategy |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Min | Max | |
| Physical Risk | Acute | Damage to asset values and worksites caused by acute weather events such as winds, floods, etc. | Increase in asset recovery cost & Losses from business interruptions | | | | 373 | 396 | Minimizing Operation Risk<br>• Establishment of a natural disaster response alert system to prevent risk occurrence<br>• Establishment of emergency response plans for natural disaster to regularly monitor the physical risks |
| | Chronic | Damage to asset values and worksites may occur as a result of chronic weather patterns such as heat, droughts, etc. | | | | | 32 | 39 | |
| Transition Risk | Policy/ Legal | Reinforcement of the domestic emission trading scheme and increase in allowance price | Increase in purchase cost of emission allowance | | | | 278 | 890 | Refer to IV. Building Resilience of Our Strategy - "Net Zero at worksites"<br>• Establishment of an implementation roadmap for emission reduction in worksites<br>• Enhancing internal capabilities to achieve net zero and RE100 goals. |
| | Market | Increase in electricity costs in medium to long-term caused by delays in renewable energy transition | Increase in operation costs | | | | 32 | 320 | |
| | Technology | Increase of competitive weakness due to widening gap in eco-friendly technology compared to competitors | Decrease in revenue | | | | 47,957 | 54,038 | Maximizing Business Value<br>Refer to IV. Building Resilience of Our Strategy - "Product Use Phase Emissions Reduction Strategy"<br>• Establishment of fuel efficient & electrified product portfolio<br>• Expansion of R&D investment in eco-friendly products. |
| | | Decrease in market share of conventional engine products due to replacement with lower carbon engines | Decrease in revenue | | | | 25,451 | 92,452 | |
| Opportunity | Product/ Services | Increased demand for construction equipment with technologies of fuel efficiency improvement applied for medium to long-term emission reduction | Increase in revenue | | | | 1,700 | 140,818 | |
| | | Increased demand for construction equipment with electrified technology applied for long-term emission reduction | Increase in revenue | | | | 4,507 | 137,068 | |
| | | Increased demand for ICT (automation) construction equipment due to the rise in disaster recovery sites | Increase in revenue | | | | 1,333 | 1,437 | |

* Physical risks are based on the amount as of 2032, while transition risks and opportunities are the cumulative amounts for the 10-year period from 2023 to 2032

# Building Resilience of Our Strategy

HD Hyundai Construction Equipment Sector has established a Net Zero strategy for worksites by 2050 to manage Climate-related risks and opportunities. The Sector plans to reduce GHG emissions during the operational phase through a transition to renewable energy transition, fuel conversion, and carbon offsetting for residual emissions.
Additionally, to manage GHG emissions in the value chain, the HD Hyundai Construction Equipment Sector has set a target to reduce carbon emissions by 25% during the product use phase by 2040. The Sector aims to achieve the target by expanding its fuel-efficient and electrified product portfolio with electro-hydraulic technology, power transmission technology, etc.

# Climate Change Response Strategy

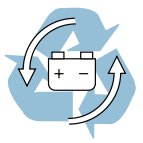
## Our Strategic Approach

To minimize the impact of Climate-related risks and maximize the impact of climate opportunities, the HD Hyundai Construction Equipment Sector has enhanced its climate change response strategy this year. To reduce operational risks, the Sector has established a Net Zero strategy for worksites by 2050 through renewable energy transition, fuel conversion, and carbon offset for residual emissions. Additionally, the Sector has set a strategy to reduce carbon emissions in the product use phase by reorganizing the product portfolio to include more fuel-efficient and electrified products, thereby expanding sales opportunities for these products. HD Hyundai Construction Equipment Sector's strategy for reducing carbon emissions during the product use phase aims to achieve a 25% reduction by 2040 compared to the 2021 level. The goal is to make a major shift in its product portfolio towards fuel-efficient and electrified construction equipment.

**Minimize Risks** — NET ZERO at worksites

**To reach reduction target of 42% by 2040 compared to 2021 level, To achieve RE100 by 2040, and NET ZERO by 2050 at worksites**

Key Reduction Measures



**Renewable Energy Transition**
Transition to renewable energy through PPA, REC, green premiums, and self-generation

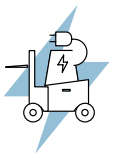
**Fuel Conversion**
Converting the diesel used in test operations as part of the product electrification

**Carbon Offset**
Carbon offset for residual emissions

**Maximize Opportunities** — Reduction of Carbon Emssions during the Product Use Phase

**To reach reduction target of 25% by 2040 compared to 2021 level through sales expansion of fule-efficient and electrified product portfolio**

Key Reduction Measures



**Electrification of Products**
Transition of Small and Medium products to BEVs and large products to FCEVs

**Improvement in Fuel Efficiency**
Improvement in fuel efficiency through elec-tro-hydraulic, and power transmission technology

**Compliance with Emission Regulations**
Applying fuel-efficient regulation engines to have GHG reduction effects

## Net Zero at Worksites

### Net Zero Target

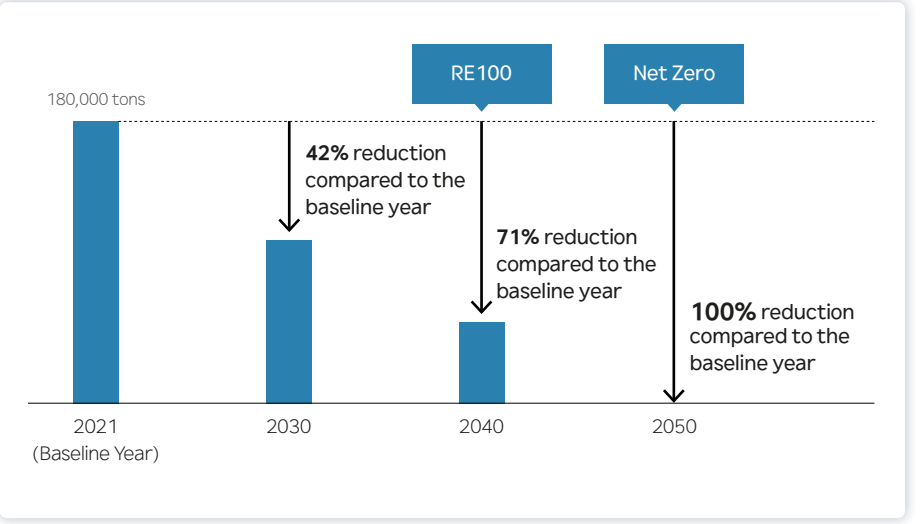
To actively participate in the transition to a low-carbon economy, the HD Hyundai Construction Equipment Sector has established a Net Zero target in accordance with the Science Based Targets Initiative (SBTi) to achieve the 1.5℃ milestone. Based on GHG emissions of approximately 180,000 tons* generated in operations in 2021, the HD Hyundai Construction Equipment Sector aims to reduce emissions by 42% in 2030, 71% in 2040, and achieve Net Zero at worksites by 2050.

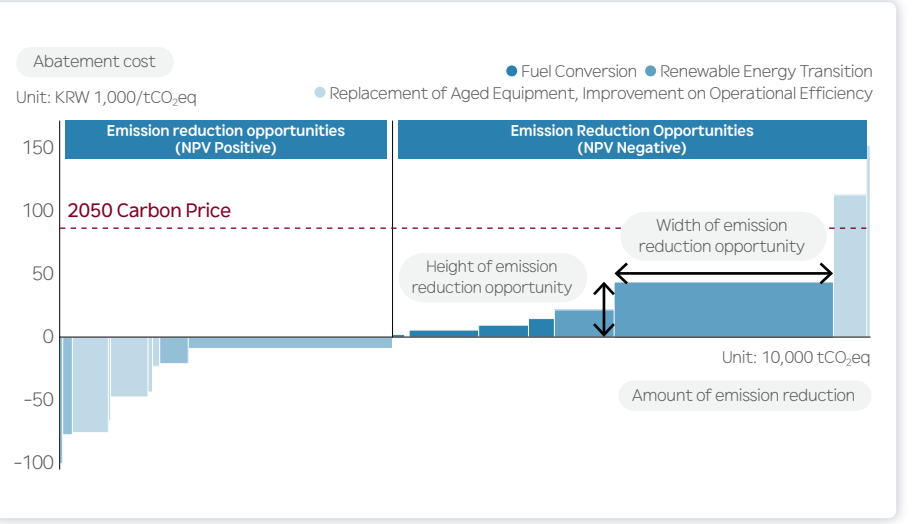
By achieving this target, the Sector aims to reduce operational risks and continuously strive to provide a foundation for sustainable growth for the HD Hyundai Construction Equipment Sector.

* This is the baseline year emissions disclosed in HD Hyundai Construction Equipment Sector's TCFD Report 2022.

### Net Zero Target Implementation Plan

HD Hyundai Construction Equipment Sector has developed a GHG emissions reduction strategy and implementation measures to achieve its Net Zero target. The Sector utilized the Marginal Abatement Cost Curve (MACC) as a tool to identify reduction opportunities by integrating the costs associated with GHG emissions reductions. The MACC incorporates various reduction measures such as replacing old equipment, improving operational efficiency, installing rooftop solar power, procuring renewable energy, and converting test operation fuel, etc. To prioritize these reduction measures, the HD Hyundai Construction Equipment Sector has developed a strategy for reducing GHG emissions that considers factors beyond just reduction costs, including facility limitations, market penetration opportunities, and the need for strategic improvements. The Sector plans to pursue GHG emissions reductions in a sequential order based on priority.

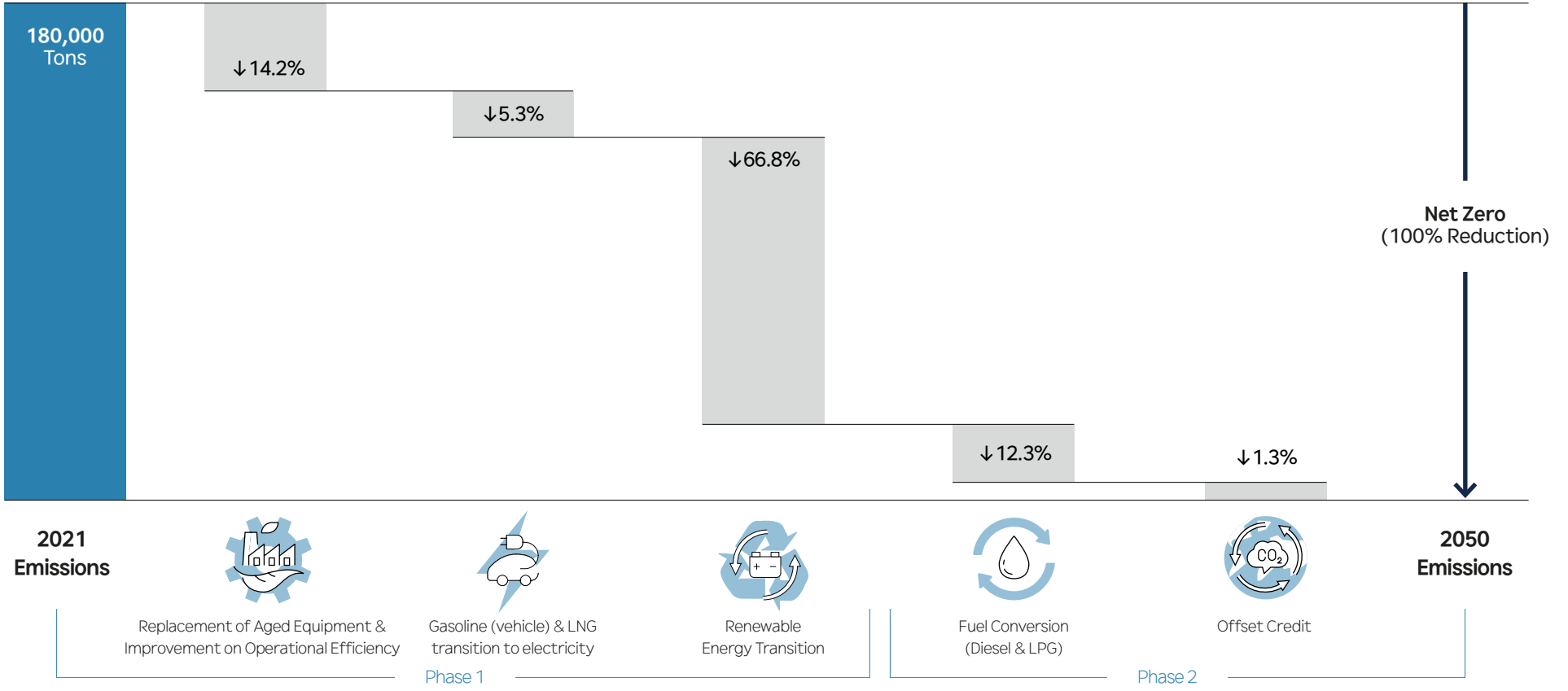


Net Zero at Worksites

## 2050 Net Zero Pathway

**HD Hyundai Construction Equipment Sector's 2021~2050 Net Zero Pathway**



Net Zero at Worksites

## [Reference] Renewable Energy Transition

### Joining RE100 Initiative

In 2023, approximately 70% of the total GHG emissions from the operations were due to electricity usage. For the HD Hyundai Construction Equipment Sector to achieve its Net Zero target, transitioning its fossil fuel-based electricity use to renewable energy is crucial. In the face of escalating damages from climate change worldwide, the Sector is committed to actively transitioning to renewable energy.

In late 2023, HD Hyundai XiteSolution, the intermediate holding company of the HD Hyundai Construction Equipment Sector, became the first in the construction equipment industry to join the global RE100 Initiative. Additionally, the HD Hyundai Construction Equipment Sector has announced a new RE100 target, moving up the previous target set in 2022 from 2045 to 2040.

HD Hyundai XiteSolution, along with its subsidiaries HD Hyundai Construction Equipment and HD Hyundai Infracore, is implementing various transition measures such as energy efficiency improvements, self-solar power generation system installation, PPA, etc. These measures aim to achieve a 100% transition to renewable energy at worksites by 2040.

RE100 CLIMATE GROUP | CDP

### Renewable Energy Transition Efforts

Aiming to reduce GHG emissions per unit of product manufactured, the HD Hyundai Construction Equipment Sector simultaneously pursuing activities to reduce and optimize overall electricity consumption at its facilities. Primarily, HD Hyundai XiteSolution and HD Hyundai Construction Equipment aim to maximize energy efficiency through the advancement of their key production sites, particularly the Ulsan Campus, by 2025. They plan to efficiently restructure manufacturing processes to facilitate energy savings and establish systems for energy monitoring and integrated data management.

In terms of the transition to renewable energy transition, HD Hyundai Construction Equipment is focusing on overseas efforts, while HD Hyundai Infracore is focusing on domestic efforts to proactively secure renewable energy. HD Hyundai Construction Equipment is introducing solar energy at its operations in China and India. Since November 2022, the China Campus has been procuring 3,800MWh of solar energy annually, which accounts for half of the electricity needed for annual production. Similarly, since September 2023, the India Campus has been procuring 70% of its annual electricity consumption for production by installing a solar power generation system and an energy management system on nearby idle land. Since July 2023, HD Hyundai Infracore has been procuring external renewable energy for its domestic worksites through power purchase agreements (PPAs). Additionally, the company is initiating the installation of a self-solar power generation system utilizing rooftops and parking lot areas at its worksites.

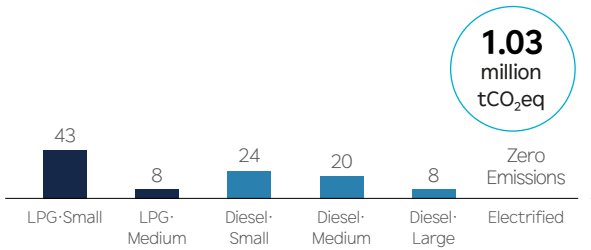
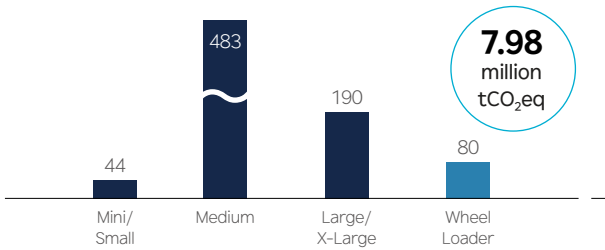
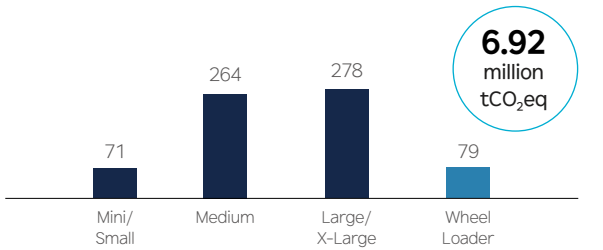
HD Hyundai Construction Equipment initially planned to achieve RE100 at its domestic production facility (Ulsan Campus) by 2025. The company has conducted inspections of infrastructure within the Ulsan facility and explored various options for introducing stable renewable energy. While prioritizing methods like Power Purchase Agreements (PPAs), which involve converting existing electricity to renewable energy rather than purchasing certificates like RECs or Green Premiums, technical evaluations, such as installing dedicated power lines, are essential. Given that Ulsan Campus receives its electricity supply through HD Hyundai Heavy Industries, the installation of dedicated power lines is necessary. Therefore, HD Hyundai Construction Equipment plans to maximize the use of feasible implementation methods before completing the installation of dedicated power lines. This includes installing rooftop solar panels at the Ulsan Campus. Upon the completion of the dedicated power lines, the Ulsan Campus aims to achieve RE100 by 2026.

## Product Use Phase Emissions Reduction Strategy

Most of the GHG emissions from the HD Hyundai Construction Equipment Sector's value chain are emitted during the product use phase. To manage value chain GHG emissions through the expansion of a fuel-efficient and electrified product portfolio, the Sector has established a carbon emission reduction strategy for the use phase of main product categories (forklifts, excavators, wheel loaders) based on regulations, market trends, and the Sector's internal capabilities. In the short term, the HD Hyundai Construction Equipment Sector will execute the strategy by selling electrified forklifts and fuel-efficient products with electro-hydraulic technology, regulatory engines, and more. The Sector will actively participate in electrification once the electrified product market becomes active. Ultimately, the Sector's target is to achieve a 25% reduction in product use phase emissions by 2040 compared to the base year of 2021.

**Target**

**To reach product use phase emission[1] reduction target of 25% by 2040 compared to 2021**

| | HD Hyundai XiteSolution | HD Hyundai Construction Equipment | HD Hyundai Infracore |
|---|---|---|---|
| **Emission Status** (2023) |  |  |  |
| **Emission Characteristics** | Small LPG Forklifts proportion 42% | Medium/Large/X-Large Excavators proportion 84% | Medium/Large/X-Large Excavators Proportion 78% |
| **Key Reduction Measure** | [Short-term] Electrification of diesel foklifts (BEV)<br>[Medium-term] Electrification of LPG forklifts (BEV) | [Short-term] Applying electro-hydraulic technology for medium/large/X-large excavators<br>Deployment regulatory engine for wheel loaders in developed market<br>[Medium-term] Electrification of small excavators (BEV)<br>Applying power transmission for wheel loaders<br>Applying electro-hydraulic technology for medium/large/X-large excavators<br>[Long-term] Electrification of medium/large/x-large excavators (BEV, FCEV)<br>Electrification of wheel loaders (BEV, FCEV) | [Short-term] Applying electro-hydraulic technology for medium/large/X-large excavators<br>Deployment regulatory engine for wheel loaders in developed market<br>[Medium-term] Electrification of small excavators (BEV)<br>Applying power transmission for wheel loaders<br>Applying electro-hydraulic technology for medium/large/X-large excavators<br>[Long-term] Electrification of medium/large/x-large excavators (BEV, FCEV)<br>Electrification of wheel loaders (BEV, FCEV) |

1) Emission in Product Use Phase($tCO_2eq$) = ∑ Products Sold in the Reporting Year X Fuel Efficiency( ℓ /hr) X Working Hours(hr/yr) X Emission Factors($tCO_2eq$/ ℓ ) X Life Spans(yr)

Product Use Phase Emissions Reduction Strategy

## Reorganization of Product Portfolio

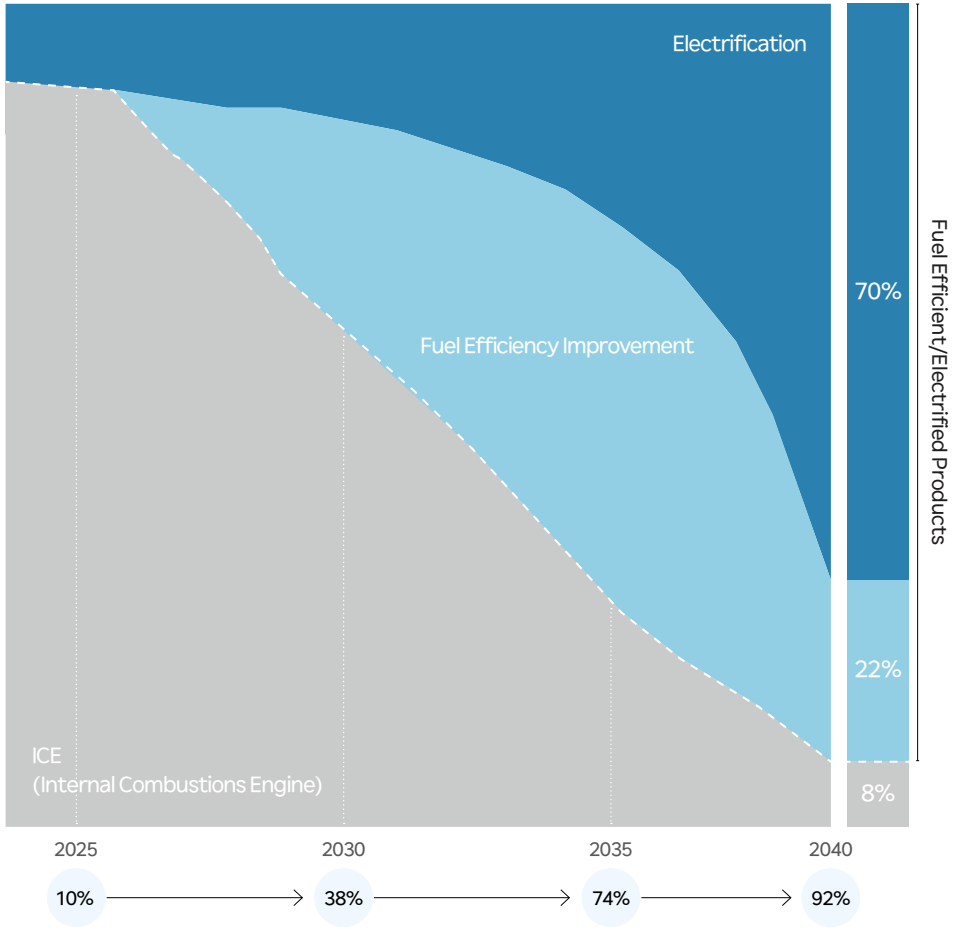
HD Hyundai Construction Equipment Sector aims to reorganize its product portfolio around fuel-efficient and electrified products to reduce carbon emissions during the product use phase by 25% compared to the baseline year of 2021 by 2040.

For the reorganization of its product portfolio, the HD Hyundai Construction Equipment Sector is closely monitoring relevant regulations and market trends and adjusting its strategy flexibly according to the circumstances. Upon examining current regulations and market trends, it has been observed that the current market for electrified construction equipment is not growing as rapidly as previously anticipated, and there is a low likelihood of short-term market growth. However, it is predicted that Low/Zero Emission Zones at construction sites will continue to expand, particularly in developed markets such as Europe and North America. Additionally, discussions are underway in the United States regarding the introduction of GHG emissions regulations for off-road engines. Accordingly, the Sector plans to secure a product portfolio focused on improving the fuel efficiency of excavators/wheel loaders and electrified forklifts in short term. Additionally, once related regulations and markets become active, the Sector will expand its electrified product portfolio. To reorganize its product portfolio, the HD Hyundai Construction Equipment Sector is accelerating the development of new technologies such as fuel efficiency improvement, electrification, hydrogen, etc. The Sector plans to expand the sales proportion of fuel-efficient and electrified products to 92% by 2040.

### Applied Technologies to Improve Fuel Efficiency and Electrification

| Product Category | Technology Classification | Applied Technologies |
|---|---|---|
| Excavators | Fuel-efficient | Electro-Hydraulic |
| | Electrification | BEV, FCEV |
| Wheel Loaders | Fuel-efficient | Power Transmission |
| | Fuel-efficient | Regulatory Engine |
| | Electrification | BEV, FCEV |
| Forklifts | Electrification | BEV |

### Product Portfolio Reorganization Plan



# Metrics & Targets

HD Hyundai Construction Equipment Sector aims to transparently disclose the progress of its Net Zero target for worksites and product use phase GHG emissions reduction targets to stakeholders. Accordingly, Scope 1 and 2 (direct and indirect GHG emissions from worksites) and Scope 3 (value chain GHG emissions) indicators are being disclosed, ensuring their reliability through third-party verification.

In addition to GHG emissions, indicators such as energy consumption, research and development, and sales performance are disclosed and managed. By continuing to transparently share progress and achievements in climate change efforts, the Sector aims to enhance the credibility of the HD Hyundai Construction Equipment Sector's commitment to responding to climate change.

## GHG Emissions and Reduction Targets

### GHG Emissions in Worksites

Achieving the Net Zero target begins with calculating GHG emissions by emission sources within the operational control. To ensure a more accurate emissions calculation, the HD Hyundai Construction Equipment Sector has redefined organizational boundaries to include all GHG emissions from worksites. Under the revised organizational boundaries, which encompass all production worksites in both domestic and overseas, a total of 153,000 tons of GHG were emitted in 2023.

To reduce GHG emissions from worksites (Scope 1+2), the HD Hyundai Construction Equipment Sector is actively pursuing activities such as transitioning renewable energy, converting fuel, and more. The Sector aims to achieve RE100 across worksites by 2040 and Net Zero by 2050.

**GHG Emissions in Worksites and Target**


**Scope 1 & 2 GHG Emission and Energy Usage***

| Company | Categories | Units | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|
| HD Hyundai XiteSolution | Scope 1 | $tCO_2eq$ | 1,669 | 1,884 | 1,834 |
| | Scope 2 | $tCO_2eq$ | 12,394 | 10,766 | 12,564 |
| | Scope 1+2 | $tCO_2eq$ | 14,063 | 12,651 | 14,398 |
| | Energy Use | TJ | 193 | 171 | 202 |
| | Renewable Energy Use | TJ | - | - | - |
| HD Hyundai Construction Equipment | Scope 1 | $tCO_2eq$ | 18,009 | 16,055 | 14,154 |
| | Scope 2 | $tCO_2eq$ | 22,782 | 19,558 | 19,024 |
| | Scope 1+2 | $tCO_2eq$ | 40,791 | 35,613 | 33,178 |
| | Energy Use | TJ | 322 | 496 | 456 |
| | Renewable Energy Use | TJ | - | 3 | 13 |
| HD Hyundai Infracore | Scope 1 | $tCO_2eq$ | 35,593 | 31,773 | 29,872 |
| | Scope 2 | $tCO_2eq$ | 96,064 | 88,560 | 74,873 |
| | Scope 1+2 | $tCO_2eq$ | 131,657 | 120,333 | 104,745 |
| | Energy Use | TJ | 2,033 | 2,037 | 2006 |
| | Renewable Energy Use | TJ | - | - | 10 |
| Total | Scope 1+2 | $tCO_2eq$ | 186,511 | 168,597 | 152,321 |

* Due to the redefinition of organizational boundaries within the HD Hyundai Construction Equipment Sector and the integrated management of GHG emission factors for calculation criteria, the TCFD Report published in 2023 may differ from the data disclosed in the 2022 report.

GHG Emissions and Reduction Targets

## Scope 3 and GHG Emission in Product Use Phase

HD Hyundai Construction Equipment Sector calculates and discloses Scope 3 emissions, which do not directly originate directly from its worksites. These emissions are calculated based on internal standards referencing the principles specified by the Greenhouse Gas Protocol. Scope 3 emissions include seven categories of upstream activities and four categories of downstream activities relevant to the HD Hyundai Construction Equipment Sector.

98% of total Scope 3 emissions occur during the use phase of sold products, highlighting the need to reduce emissions by expanding the fuel-efficient and electrified product portfolio. To this end, a target has been set to reduce emissions by 25% by 2040 compared to 2021 levels. The Sector is accelerating the development of new technologies and products, including fuel efficiency improvements, electrification, hydrogen, and etc.

### Product Use Phase Emission Calculating Methodology

To calculate carbon emissions from products, emissions are estimated and managed based on the working hours and fuel efficiency of representative product groups sold annually. Starting this year, the Sector has implemented standardized lifespans for each product group to calculate all emissions generated during the period in which the product is used by the customer.

Working hours and fuel efficiency are based on data collected through TMS and Hi Mate systems attached to the products, minimizing variations caused by different operating conditions. When necessary, this data is supplemented with internal test results.

### 2023 Scope 3 Emission by Category

| | Categories | HD Hyundai XiteSolution | HD Hyundai Construction Equipment | HD Hyundai Infracore |
|---|---|---|---|---|
| Upstream | ① Purchased Goods and Services | 13,941 | 24,432 | 51,325 |
| | ② Capital Goods | 121 | 53 | 630 |
| | ③ Fuel- and Energy-Related Activities | 890 | 1,674 | 10,023 |
| | ④ Upstream Transportation and Distribution | 19,713 | 81,524 | 146,652 |
| | ⑤ Waste Generated in Operation | 189 | 988 | 1,243 |
| | ⑥ Business Travel | 735 | 1,531 | 1,132 |
| | ⑦ Employee Commuting | 78 | 56 | 1,070 |
| Scope 3 – Upstream Total | | 35,667 | 110,258 | 212,074 |
| Downstream | ⑨ Downstream Transportation and Distribution | 3,931 | 15,148 | 798 |
| | ⑪ Use of Sold Product[1)] | 1,029,969 | 7,976,188 | 6,917,978 |
| | ⑫ End-of-Life Treatment of Sold Product | 326 | 1,990 | 2,598 |
| | ⑮ Investments | - | 0.47 | 10.57 |
| Scope 3 – Downstream Total | | 1,034,226 | 7,993,326 | 6,921,385 |
| Scope 3 Total Emissions | | 1,069,893 | 8,103,584 | 7,133,459 |

1) Emission in Product Use Phase($tCO_2eq$) = ∑ Products Sold in the Reporting Year x Fuel Efficiency (L/hr) x Working Hours (hr/yr) x Emission Factors ($tCO_2eq/L$) x Life Spans (yr)

GHG Emissions and Reduction Targets

## Research and Development

HD Hyundai Construction Equipment Sector is working to reduce carbon emissions during the product use stage by expanding sales of eco-friendly products. The Sector is actively pursuing the development of fuel-efficient technologies, electrification, hydrogen, and other eco-friendly technologies and products. The aim is to achieve a sales ratio of eco-friendly construction equipment products that meet internal standards, accounting for 92% of total sales by 2040.

**Reserach & Development Expenditure and Sales Performance**

| Company | Categories | Unit | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|
| HD Hyundai XiteSolution | R&D investment to sales[1)] | % | - | 2.8 | 2.5 |
| | R&D investment | KRW 100 million | - | 196 | 249 |
| | Cleantech R&D investment | KRW 100 million | - | 24 | 44 |
| | Eco-friendly product sales[2)] | KRW 100 million | - | 1,163 | 1,328 |
| HD Hyundai Construction Equipment | R&D investment to sales[1)] | % | 3.1 | 2.3 | 3.1 |
| | R&D investment | KRW 100 million | 672 | 592 | 759 |
| | Cleantech R&D investment | KRW 100 million | 55 | 52 | 64 |
| | Eco-friendly product sales[2)] | KRW 100 million | 774 | 1,550 | 1,258 |
| HD Hyundai Infracore | R&D investment to sales[1)] | % | 3.7 | 3.8 | 4.3 |
| | R&D investment | KRW 100 million | 1,356 | 1,620 | 1,842 |
| | Cleantech R&D investment | KRW 100 million | - | 131 | 261 |
| | Eco-friendly product sales[2)] | KRW 100 million | - | 15,637 | 13,569 |
| Total | R&D investment | KRW 100 million | 2,028 | 2,400 | 2,887 |
| | Cleantech R&D investment | KRW 100 million | 55 | 207 | 369 |
| | Eco-friendly product sales[2)] | KRW 100 million | 774 | 18,350 | 16,155 |

1) Calculated based on separate financial statements for the respective year, using sales revenue as the basis
2) Based on an internal product classification system: Power conversion technologies (electrification, energy recovery, clean energy) and fuel efficiency technologies (improvement on fuel efficiency, prevention of fuel inefficiency).

# Appendix

## TCFD Index

| TCFD Recommendations | Page |
|---|---|
| Governance | |
| a) Describe the board's oversight of climate-related risks and opportunities. | p.9 |
| b) Describe management's role in assessing and managing climate-related risks and opportunities. | p.10 |
| Strategy | |
| a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term. | p.13, 16, 23 |
| b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning. | p.17~23 |
| c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario. | p.15, 25~30 |
| Risk Management | |
| a) Describe the organization's processes for identifying and assessing climate-related risks. | p.14 |
| b) Describe the organization's processes for managing climate-related risks. | p.11 |
| c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management. | p.11 |
| Metrics & Targets | |
| a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process. | p.32~34 |
| b) Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks. | p.32~33 |
| c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets. | p.7, 32 |

## Independent Assurance Report

# GREENHOUSE GAS EMISSIONS VERIFICATION OPINION HD HYUNDAI CONSTRUCTION EQUIPMENT Co., Ltd.

### Introduction

DNV Business Assurance Korea Ltd. ("DNV") was commissioned by HD Hyundai Construction Equipment Co., Ltd. ("HD Hyundai Construction Equipment") to verify the HD Hyundai Construction Equipment's Greenhouse Gas Inventory Report for the calendar year 2023 ("the report") based upon a reasonable level of assurance. HD Hyundai Construction Equipment is responsible for the preparation of the GHG emissions data on the basis set out within the guidelines on the operation of GHG emission trading scheme ("ETS") (Notification No. 2023-221 of Ministry of Environment)'. Our responsibility in performing this work is to the management of HD Hyundai Construction Equipment only and in accordance with terms of reference agreed with them. DNV expressly disclaims any liability or responsibility for any decisions, whether investment or otherwise, based upon this verification opinion.

### Scope of Assurance

The GHG emissions data covered by our examination is set for 100% of SGC Energy's non-consolidated revenues under the GHG ETS and comprise Direct emissions (Scope 1 emissions) and Energy indirect emissions (Scope 2 emissions) from HD Hyundai Construction Equipment's Ulsan Campus boundary;

- Organizational boundary for reporting: Ulsan Campus of HD Hyundai Construction Equipment

### Verification Approach

The verification has been conducted by DNV on March 2024 and performed in accordance with the verification principles and tasks outlined in the guidelines on the operation of GHG ETS (Notification No.2023-221, Korean Ministry of Environment) and the verification guideline for GHG ETS (Notification No. 2021-112, Korean Ministry of Environment). We planned and performed our work to obtain all the information and explanations deemed necessary to provide us with sufficient evidence to provide a reasonable verification opinion concerning the completeness of the emission inventory as well as the reported emission figures in ton $CO_2$ equivalent. As part of the verification process;

- We have reviewed the GHG emissions and energy consumption report for the calendar year 2023
- We have reviewed and verified the process to generate, aggregate and report the emissions data

### Conclusions

As a result of the work described above, in our opinion nothing has come to our attention that would cause us to believe that the GHG emissions set out in Hyundai Construction Equipment's report are not fairly stated. The GHG emissions of HD Hyundai Construction Equipment for the year 2023 were confirmed as below;

### GHG Emissions and Energy Consumption of HD Hyundai Construction Equipment for Yr 2023

(Unit : ton $CO_2e$)

| Ulsan Campus of HD Hyundai Construction Equipment | | 2023 |
|---|---|---|
| GHG Emissions (ton-$CO_2$ equivalent) | Scope1 | 8,073.795 |
| | Scope2 | 5,149.575 |
| | Total | **13,223** |
| Energy Consumption (Terajoule, TJ) | Fuel | 87.313 |
| | Electricity & team | 107.607 |
| | Total | **194** |

* Total emissions might be different from the sum of direct and indirect emissions by applying the rule that emissions should be summed after truncating decimal places at the business site level.

May 2024
Seoul, Korea

This Verification Opinion is valid as of the date of the issuance (20 May 2024). Please note that this Opinion would be revised if any material discrepancy which may impact on the Greenhouse Gas Emissions of HD Hyundai Construction Equipment is subsequently brought to our attention. In the event of ambiguity or contradiction in this Opinion between English version and Korean version, Korean shall be given precedent.

Jang-Sub Lee
Country Manager
DNV Business Assurance Korea Ltd

Independent Assurance Report

# Verification Opinion

**[Issue No. of Verification Opinion]**
**CSR-VO-20240530-00001**

## 1. Verification Introduction

This verification has been conducted by Creative Sustainable Register (hereinafter "CSR"), third-party verification body accredited by ISO and Ministry of Environment, to verify that the Green-house Gas Statement (hereinafter 'claim') regarding the greenhouse gas emissions of HD Hyundai Infracore Co., Ltd. (hereinafter 'the client') has been accurately calculated and reported in accordance with the applicable verification criteria (see section 3). The client is responsible for fairly preparing and submitting the claim in accordance with the applicable verification criteria (see section 3). This responsibility includes designing, implementing, and maintaining data and information management systems related to the fair preparation and submission of a claim that is free from material misstatement.

## 2. Verification Information

CSR entered a legally binding contract with the client for the purpose of this verification (refer to section 1) and agreed upon the following matters.

2.1 Customer: HD Hyundai Infracore Co., Ltd.
2.2 Address: 489, Injung-ro, Dong-gu, Incheon, Korea
2.3 Boundary: 7 domestic business place
2.4 Period: 1 year(1st Jan., 2023 ~ 31th Dec., 2023) 2.5 Scope: Direct emission(Scope1), Indirect emission (Scope2)
2.6 Requirement of Greenhouse gas Programme:
1) Applied programme: Greenhouse gas ETS of Korea
2) Assurance level: reasonable assurance level
3) Materiality: within +/-5%

## 3. Verification Criteria

CSR verified the claim prepared by the client in accordance with the Act on the Allocation and Trading of Greenhouse Gas Emission Permits, Article 13 and its Enforcement Decree, Article 21, and the Guidelines on Reporting and Certification of Emissions for the Emissions Trading System (Ministry of Environment Notice No. 2023-221). This verification was conducted in accordance with the Verification Guidelines for the Operation of the Emissions Trading System (Ministry of Environment Notice No. 2021-112) and our greenhouse gas verification procedures based on the ISO 14064-3.

## 4. Verification Procedure

CSR conducted this verification using an evidence-based approach for the client's claim based on historical data (refer to section 2.4). Evidence was collected and its suitability assessed according to the activities outlined below. Finally, an independent technical review by personnel not involved in the planning and execution stages of the verification was conducted, leading to the formulation of the verification opinion (refer to section 6).

- Establishing an evidence collection plan through strategic analysis, risk assessment, and evidence gathering activities
- Visiting business sites and facilities and interviewing relevant personnel to collect

evidence and resolve issues
- Sampling greenhouse gas data and information that meet the "level of assurance (refer to section 2.6's 2))"
- Evaluating recalculations of emissions that meet the "materiality threshold (refer to section 2.6's 3))"

Independent Assurance Report

## 5. Verification limits

This verification was conducted by an independent third-party verification body with no conflicts of interest with the client. Although appropriate measures were taken to provide reasonable assurance using a risk-based approach and an evidence-based approach, due to the inherent limitations of the sampling approach, some misstate-ments or non-conformities may remain within the materiality threshold in the client's claim.

## 6. Verification opinion

CSR conducted verification at a reasonable assurance level in accordance with the greenhouse gas program requirements agreed upon with the client (refer to section 2.6). Through this process, it has been confirmed that the client's claim is as follows, therefore, we express a "Unqualified" opinion.

1) there is sufficient and appropriate evidence to support emissions.
2) the verification criteria have been appropriately applied to emissions.
3) the effectiveness of controls was evaluated when deemed necessary by the verification audit team.

Accordingly, the confirmed final greenhouse gas emissions information is as follows.

| Reporting year | Type | GHG Quantity (unit: $tCO_2eq$) |
|---|---|---|
| 2023 | Direct emission | 26,304.306 $tCO_2eq$ |
| | Indirect emission | 68,175.128 $tCO_2eq$ |
| | Toal annual emission | 94,476 $tCO_2eq$ |

May 30, 2024
Creative Sustainable Register Co., Ltd.
Address: #1-611, 775, Gyeongin-ro, Yeongdeungpo-gu, Seoul, Korea

Verifier: Seo Jeongmin

CEO: Chun-Seong Choi

CSR Creative Sustainable Registrar

국립환경과학원

The responsibility for this verification opinion lies with CSR, which hold the authority over it. Therefore, the client cannot arbitrarily add, delete, or alter this opinion. If the content of this opinion is to be quoted, the client must comply with the CSR's 'Guideline for Quoting Verification Statements and Using Verification Body Marks.'

Independent Assurance Report

## HD Hyundai Construction Equipment Co., Ltd.

**Scope:**
- Other indirect greenhouse gas emissions in 2023 (Scope 3)
- 2023 HD Hyundai Construction Equipment's Domestic Business Sites

**Data Verified:**
- Emissions (Scope3) for product manufacturing and disposal of products at domestic workplaces in 2023 are as follows.

**GHG Criteria & Protocols used for Verification:** (Unit: $tCO_2e$)

| Category | Scope of business establishment | Total Emissions in 2023 |
|---|---|---|
| Purchased Goods and services | All business establishments | 27,967.60 |
| Capital Goods | All business establishments | 53.44 |
| Fuel-and Energy-Related Activities Not Included in Scope1 or Scope 2 | All business establishments | 1,674.09 |
| Upstream Transportation and Distribution | All business establishments | 81,524.00 |
| Waste Generated in Distribution | Ulsan, Yongin | 987.88 |
| Business Travel | All business establishments | 1,530.58 |
| Employee Commuting | Ulsan, Yongin, Bundang | 55.78 |
| Downstream Transportation and Distribution | All business establishments | 15,147.66 |
| Use of Sold Products | All business establishments | 7,976,187.71 |
| End-of-Life Treatment of Sold Products | All business establishments | 1,990.45 |
| Investments | - | 0.47 |
| Total | | 8,107,119.67 |

The verification was carried out at the request of the HD Hyundai Construction Equipment Co., Ltd. using:
- ISO14064-1:2018 & ISO 14064-3:2019
- WBCSD/WRI GHG protocol
- 2006 IPCC Guidelines
- Guideline for Reporting and Certification of Emissions in the Greenhouse Gas Emissions Trading Scheme(2023-221)
- BSI GHGEV Manual

The standard confidentiality principle of BSI Group Korea is applied to all verification activities.

**Verification Opinion:**
BSI Group Korea's verification opinions on the result of carrying out verification in accordance with the GHG criteria and protocols mentioned above are as follows.
- Scope 3 other indirect emissions for HD Hyundai Construction Equipment's domestic business sites were carried out with limited verification.
- During the verification process, no major problems were found in the calculation of greenhouse gas emissions, and it was confirmed that the relevant activity data and evidence were appropriately managed.
- Therefore, the BSI Group Korea verification team provides an "appropriate" verification opinion.".

bsi.

For and on behalf of BSI:
Issue: 28/05/2024

Managing Director Korea,
SeongHwan Lim

## Independent Assurance Report

### HD Hyundai Infracore Co., Ltd.

**Scope:**
- Other indirect greenhouse gas emissions in 2023 (Scope 3)
- 2023 HD Hyundai Infracore's Domestic Business Sites

**Data Verified:**
- Emissions (Scope3) for product manufacturing and disposal of products at domestic workplaces in 2023 are as follows.

**GHG Criteria & Protocols used for Verification:** (Unit: $tCO_2e$)

| Category | Scope of business establishment | Total Emissions in 2023 |
|---|---|---|
| Purchased Goods and services | All business establishments | 51,415.3 |
| Capital Goods | All business establishments | 630.1 |
| Fuel-and Energy-Related Activities Not Included in Scope1 or Scope 2 | All business establishments | 10,022.8 |
| Upstream Transportation and Distribution | All business establishments | 146,652.2 |
| Waste Generated in Distribution | Incheon, Gunsan, Ansan, Boryeong | 1,242.5 |
| Business Travel | All business establishments | 1,131.6 |
| Employee Commuting | Incheon, Gunsan, Ansan, Boryeong | 1,069.7 |
| Downstream Transportation and Distribution | All business establishments | 798.1 |
| Use of Sold Products | All business establishments | 6,917,977.8 |
| End-of-Life Treatment of Sold Products | All business establishments | 2,598.2 |
| Investments | - | 10.6 |
| Total | | 7,133,549.0 |

The verification was carried out at the request of the HD Hyundai Infracore Co., Ltd. using:
- ISO14064-1:2018 & ISO 14064-3:2019
- WBCSD/WRI GHG protocol
- 2006 IPCC Guidelines
- Guideline for Reporting and Certification of Emissions in the Greenhouse Gas Emissions Trading Scheme (2023-221)
- BSI GHGEV Manual

The standard confidentiality principle of BSI Group Korea is applied to all verification activities.

**Verification Opinion:**

BSI Group Korea's verification opinions on the result of carrying out verification in accordance with the GHG criteria and protocols mentioned above are as follows.
- Scope 3 other indirect emissions for HD Hyundai Infracore's domestic business sites were carried out with limited verification.
- During the verification process, no major problems were found in the calculation of greenhouse gas emissions, and it was confirmed that the relevant activity data and evidence were appropriately managed.
- Therefore, the BSI Group Korea verification team provides an "appropriate" verification opinion.".

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For and on behalf of BSI:
Issue: 28/05/2024

Managing Director Korea,
SeongHwan Lim


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