

# PROMISING FUTURE WITH GREEN ENERGY

HD Hyundai Energy Solutions Integrated Report 2023



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# INTRO

Beyond a solar panel manufacturer to a Total Energy Solution Provider, HD Hyundai Energy Solutions aims to meet all customers' needs in solar energy from high-efficiency monocrystalline cells to modules, inverters, and Energy Storage Systems (ESS) installations. To this end, we are fully committed to sustained growth through attracting new customers and strengthening the competitiveness of our products. At the same time, we strive to secure competitive technologies through various R&D activities to establish itself as a leading company in the solar industry.

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# Company Overview

## CEO Message

 HD Hyundai Energy Solutions practices ESG Management and pursues a sustainable future through eco-friendly solar energy.



CEO & President of HD Hyundai Energy Solutions  
Jong Hwan Park

Dear esteemed stakeholders,

We extend our sincere gratitude for your unwavering interest and support in HD Hyundai Energy Solutions.

Last year, domestic and global solar PV markets faced many challenges such as a contraction of renewable energy demand due to concerns over high global interest rates and inflation, as well as a fall in market prices caused by oversupply of Chinese low-priced modules. Despite these difficulties, HD Hyundai Energy Solutions spared no effort in establishing a sustainable management system encompassing ESG (Environmental, Social, and Governance) areas, obtaining the best (AA)/ excellent (A) rating in the domestic ESG evaluation for three years in a row. As ESG management has gained significance globally, the solar PV industry, as a renewable energy source, is a main driver of a global low-carbon society. Based on the world-class technologies and capacities, HD Hyundai Energy Solutions will invest in the next generation technologies, and produce eco-friendly, high-efficiency products, thereby leading the solar industry in the global arena. In addition, with the spread of carbon neutrality policies worldwide, HD Hyundai Energy Solutions will monitor its sustainability across all ESG areas and promote the following measures to meet ESG values and directions.

**First, we will establish and implement a roadmap to reach carbon neutrality.**

HD Hyundai Energy Solutions will build and put into practice a medium to long-term carbon neutrality roadmap to minimize adverse environmental impacts across all areas of our business operations. We will contribute to collective efforts to overcome the climate crisis in our society by expanding certified low-carbon products. In addition, we will establish and implement plans to minimize carbon emissions throughout the entire value chain from procurement of raw materials to sales and end-of-life treatment of products.

**Second, we will take the initiative in the market with our eco-friendly premium products.**

HD Hyundai Energy Solutions is concentrating our efforts on developing eco-friendly, high-efficiency technologies. Driven by the commitment and pride that our products play a critical role as an important driving force in transitioning into a low-carbon society, we will always do our best to position ourselves as a leading company in ESG management.

**Third, we will strengthen transparent and responsible management by building an ESG disclosure system.**

From last year, standardized ESG disclosure requirements have begun to be announced in a full-fledged manner. In this context, HD Hyundai Energy Solutions will establish an ESG strategies-centered disclosure system to respond to the looming mandatory ESG disclosures and uphold transparent and responsible management activities led by the Board of Directors (BoD). Furthermore, we will fulfill corporate social responsibilities and roles and keep pursuing various ESG management activities to ensure that all the stakeholders including employees, contractors, and local communities will perform their part to build a harmonious and sustainable ecosystem.

We ask for the continued interest and support of the stakeholders.

Thank you very much.

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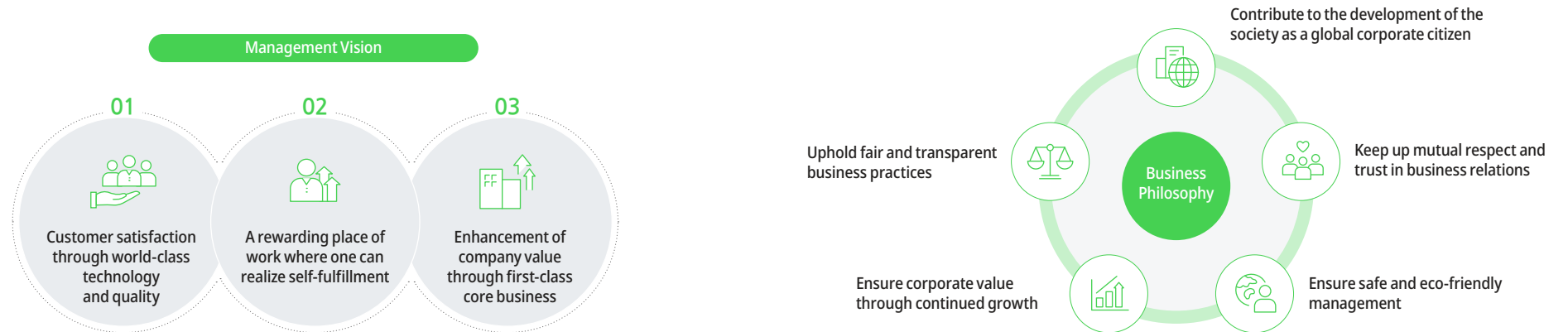
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# Company Overview

## Management System

### MISSION & VISION

|                   |  |  |   |   |
|-------------------|--|--|---|---|
| <b>Mission</b>    | <b>We bring the future closer to humanity by steering innovation and defying our limits</b>  |  |   |   |
| <b>Vision</b>     |   |   |    |   |
|                   | <b>Unlocking the limitless potential in the ocean</b>  | <b>Shaping a sustainable energy ecosystem</b>  | <b>Transcending limitations of industrial solutions</b>   |   |
|                   | To pioneer new ways of capturing untapped opportunities of the ocean by leading ocean mobility and green ocean energy with electrification technology, autonomous engineering and digital platforms. | To lead the the carbon-free energy transition by developing next-generation clean technology, building capabilities across value chains of future energy including hydrogen and innovating advanced material technology. | To contribute to the improvement of safety and efficiency in all industries by expanding the dimensions of industrial solutions through convergence with artificial intelligence and robotics |   |
| <b>Core Value</b> | <b>Innovation to lead</b>  | <b>Challenge without fear</b>  | <b>Care with respect</b>  | <b>Safety for us and for all</b>  |
|                   | Transform the way we work with a creative mindset. Shape the future of our industry through innovative and disruptive technology.  | Challenge ourselves relentlessly to create new values. Foster a culture of challenging without fear by embracing failure.  | Respect diversity and encourage open communication. Care for our people's personal and professional growth. Make a better world by upholding social responsibility.                           | Pursue the highest safety standards for our people and workplace. Contribute to the safety of customers, society and humanity with our products and services. |



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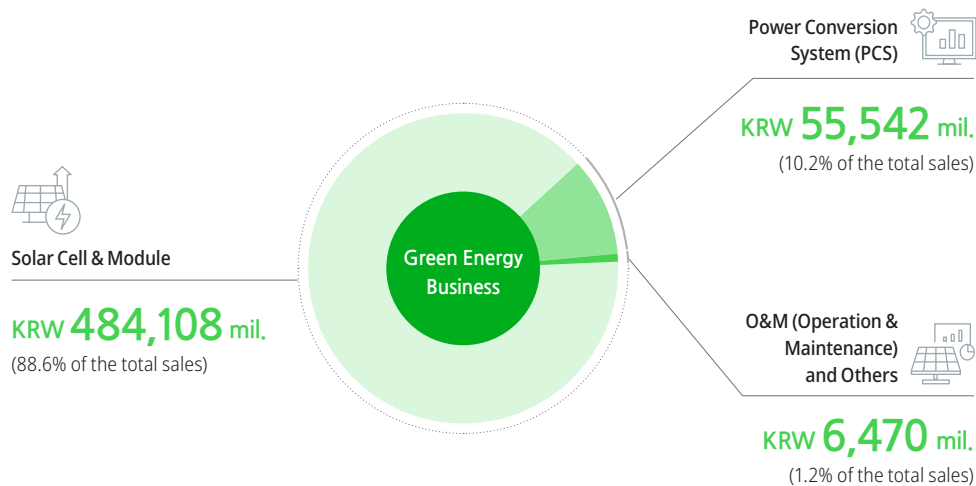
## Management System

### HD Hyundai Energy Solutions

#### General Information

|                       |  |
|-----------------------|--|
| Company Name          | HD Hyundai Energy Solutions  |
| Head Office Address   | 9F, 477, Bundangsuseo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea (Jeongja-dong, HD Hyundai Group Global R&D Center) |
| Date of Establishment | Dec. 21, 2016 (spin-off from HD Hyundai Heavy Industries (HHI))<br>* Started solar power business as a business unit of HHI in 2004  |
| CEO                   | PARK JONG HWAN   |
| No. of Employees      | 235 people   |
| Sales                 | KRW 546.1 billion (546,119,805,992)  |
| Operating Profit      | KRW 17.5 billion (17,542,859,732)  |
| Net Profit            | (KRW 2.8 billion (2,863,877,616))  |

#### 2023 Sales Performance



#### FOCUS

##### 2023 Business Performance 1

###### :: Explored emerging markets in Africa

In May 2023, HD Hyundai Energy Solutions successfully obtained its first order in the African market by signing a contract to supply 22MW solar modules to Angola. Under this contract, HD Hyundai Energy Solutions first supplied 500W high-power modules by August, which will be used by the MCA, a Portuguese construction company, to build power plants in Bailundo and Kuito in Angola. The total supply of 22MW is sufficient to meet the electricity demands of 140,000 people, contributing to a stable power supply in Angola regions. This contract will serve as a steppingstone for HD Hyundai Energy Solutions to actively explore emerging markets such as Angola and Uzbekistan, adding a new portfolio to its main markets in the U.S. and Europe.

##### 2023 Business Performance 3

###### :: Selected as the Lead Organization for MOTIE's HJT Advancement Project

HD Hyundai Energy Solutions has been selected as the lead organization for the national project promoted by the Ministry of Trade, Industry and Energy (MOTIE), titled 'Advancing Mass Production Technology for Large-area Thin-film HJT (Heterojunction Technology) Solar Cells and Modules.' Through this project, HD Hyundai Energy Solutions could initiate the development of the world's highest-efficiency solar PV products. A total of eight entities will collaborate in this national project, including domestic parts and equipment manufacturers, solar PV research institutes, and universities. HD Hyundai Energy Solutions plans to establish a mass production system for ultra-efficiency large-area (M10-class) HJT solar cells as well as develop and commercialize technologies for related materials, parts, and equipment. HD Hyundai Energy Solutions will strive to lay the foundation for securing ultra-efficiency HJT-based Tandem source technology, thereby leading the global market and spearheading the efforts toward carbon neutrality.

##### 2023 Business Performance 2

###### :: Ranked a Top Performer for M6 132 Cell

HD Hyundai Energy Solutions was rated as the Top Performer in the PV Module Reliability Scorecard published by the PV Evolution Labs (PVEL), the solar industry's leading independent test lab. The residential M6 132-cell bifacial module of HD Hyundai Energy Solutions earned recognition for its excellence by demonstrating strong durability in light and heat during the testing that proceeded with the mechanical load, thermal cycling, and humidity-freeze tests. This testing consists of six performance tests conducted under a wide range of extreme conditions such as high and low temperatures, high humidity, and high pressure, known as demanding evaluation compared to other general qualification tests.

##### 2023 Business Performance 4

###### :: Signed an MOU with KRICT on Perovskite Technology Development

HD Hyundai Energy Solutions signed a Memorandum of Understanding (MOU) with the Korea Research Institute of Chemical Technology (KRICT) to develop and exchange source technology for perovskite-silicon-based ultra-efficiency tandem solar cells. This MOU will enable us to initiate the technology development to commercialize perovskite-silicon tandem solar cells, which boast a theoretically highest efficiency of 44%, being 15%p higher than the current limit efficiency (29%) of commercial solar cells. We plan to continue technology development to commercialize this technology in cooperation with advanced research institutions from both home and abroad.

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# Business Area

## Solar Cell/ Solar PV Module



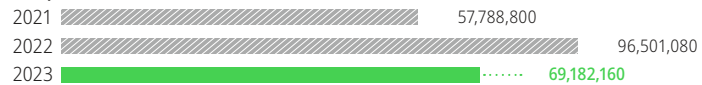
### OVERVIEW

HD Hyundai Energy Solutions has continued to develop technologies to enhance the output efficiency of solar cells, thereby producing high-power solar PV modules. We are leading in technology development through several innovative technologies including the Half-cut technology that divides a single cell into two cells and connects them; Multi-busbar technology that reduces resistance loss; and Bifacial technology that collects sunlight on both sides of the cell, thereby increasing power generation efficiency.

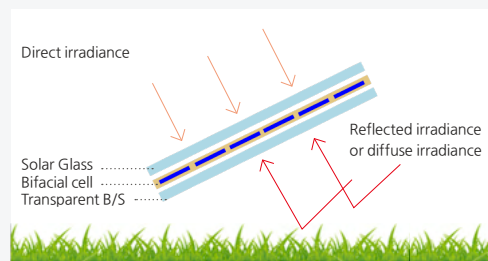
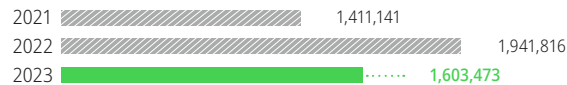
### 2023 KEY PERFORMANCE

HD Hyundai Energy Solutions ranked a Top Performer in the 2023 PV Module Reliability Scorecard published by PV Evolution Labs (PVEL), the solar industry's leading independent test lab. This reliability assessment verifies whether modules can maintain their performance in the long term under extreme weather conditions. In this regard, the assessment is reputed as more demanding than other general certification test. The assessment includes six performance tests conducted under high and low temperatures, high humidity, and high pressure to measure the output degradation of the modules. HD Hyundai Energy Solutions' M6 132-cell bifacial module recorded an output degradation rate of less than 2%, thus obtaining verification of its long-term reliability.

#### Cell production



#### Module production



Bifacial Technology



Half Cut Cell Module

## Solar PV Solutions



### OVERVIEW

Based on our long-standing experiences and extensive technological strengths, HD Hyundai Energy Solutions provides the optimal solutions for each project stage and industry sector. As for the industrial solar power project, we provide services that encompass project development, subsequent project finance (PF), engineering, procurement, and construction (EPC), and operation and maintenance (O&M) management. In addition, we strive to maximize customer satisfaction by providing optimal solutions such as large-scale ground-mounted solar panels, smart roof-top solar panels, and floating PV power systems for each industry sector based on the circumstances and characteristics of various project sites.

### 2023 KEY PERFORMANCE

HD Hyundai Energy Solutions participated in the 2023 International Green Energy Expo and showcased PV solution technologies applicable to various conditions in future cities. For example, Mobility Solar (Solar Car Roof & Hood), a CES 2023 Innovation Awards-winning product, can secure about 2,759km annual mileage through a total power output of 450W by using high-density interconnection techniques suitable for various curved surfaces. Moreover, HD Hyundai Energy Solutions introduced solar applications for Zero Energy Buildings (ZEB), featuring crystalline silicon (c-Si) based transparent solar cells that offer aesthetic impressions, reflecting the natural colors of glazing materials. As such, HD Hyundai Energy Solutions remains dedicated to developing technologies for eco-friendly future cities.



Seosan PV power plant



2023 International Green Energy Expo



Owl Reservoir floating PV plant



Building Applied Photovoltaic (BAPV) solutions

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# Business Area

## O&M/ Power Brokerage Business

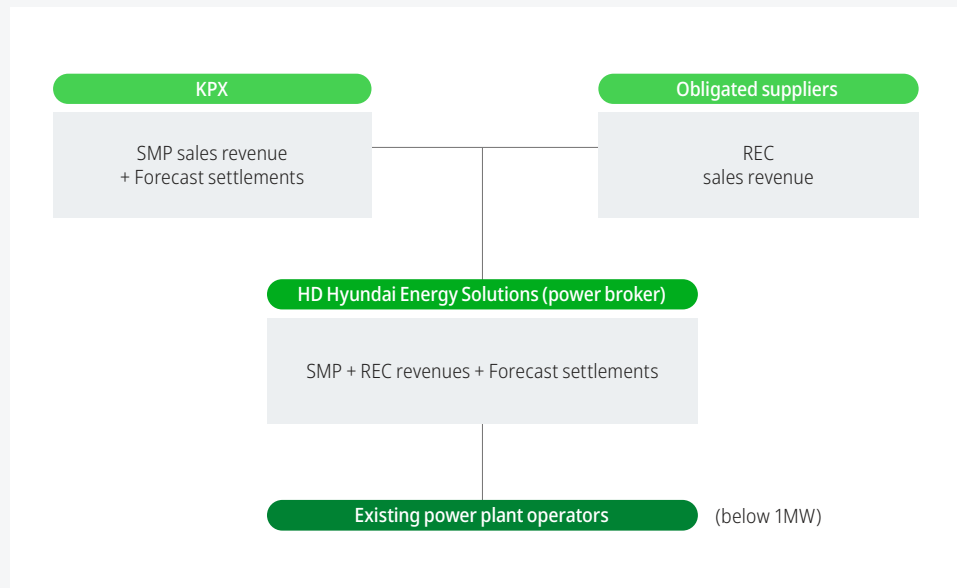


### OVERVIEW

Since 2023 when HD Hyundai Energy Solutions entered into the power brokerage business, we have strived to enhance customer profitability by providing predictive settlement amounts for power generation revenues. The power brokerage business is mainly supervised by the Korea Power Exchange (KPX) to ensure efficiency in small-scale energy resources management and stable grid operations. The power brokerage system rewards additional revenues to the existing electricity income when renewable energy generation is predicted within a specified margin of error. HD Hyundai Energy Solutions manages power generation data through its own-developed wireless monitoring system, Hi-Smart. Based on such data, we can predict power generation by forming predictive aggregated power resources (VPP; Virtual Power Plants). Moreover, this system provides services enabling customers to perform bidding and settlement together, thereby securing customer convenience.

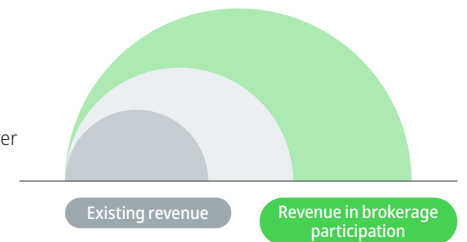
### 2023 KEY PERFORMANCE

HD Hyundai Energy Solutions maximizes customer profitability through precise power generation forecasting technology. The "Hi SMART 3.0", designed to monitor 8,000 power plants scattered throughout the nation, collects power generation and anomalous data from the plants on a real-time basis. The vast amount of data collected through the system provides a foundation for highly accurate power generation forecasts, ensuring stable power generation. Projections for the next day's power generation are registered in the KPX system daily at 10 a.m. and 3 p.m. In addition, through constant monitoring, any discrepancies between the forecasts and actual power generation will be minimized through preemptive responses. In this way, customers can secure additional profit of KRW 3 to 4 per kWh beyond existing SMP (System Marginal Price) and REC (Renewable Energy Certificate) revenues through the system.



- STEP 1 • Collection of power generation data from power plant
- STEP 2 • Registration of forecasts in the KPX system
- STEP 3 • Constant monitoring to respond to discrepancies
- STEP 4 • Streamlining the work process through the settlement system

The more accurate the power generation forecast, the higher the settlement amount. If the forecast error is within a 6-8% error margin, an additional yield of KRW 3-4 per kWh can be secured when participating in power brokerage.





# Global Network



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### Domestic Facilities

| Category       | Address  |
|----------------|--|
| Headquarters   | 9F, 477, Bundanguseo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea |
| Eumseong Plant | 313, Soi-ro, Soi-myeon, Eumseong-gun, Chungcheongbuk-do, Republic of Korea       |

### Consolidated Subsidiaries

(Unit: KRW million)

| Company Name                             | Date of Establishment | Location | Main Business       | Total Assets |
|--|-----------------------|----------|---------------------|--------------|
| HD HYUNDAI ENERGY SOLUTIONS AMERICA INC. | Apr. 19, 2019         | U.S.     | Sales of PV modules | 30,842       |

### Overseas Branches and Subsidiaries

| Branch & Office   | Date of Establishment | Location         | Main Business   |
|---|-----------------------|------------------|---|
| HD Hyundai Energy Solutions America Inc., CA USA                                      | Apr. 19, 2019         | California, U.S. | Sales of PV modules                                     |
| HD Hyundai Energy Solutions Co., Ltd. Shanghai Representative Office, Shanghai, China | Nov. 13, 2019         | Shanghai, China  | Global sales of PV modules and raw material procurement |

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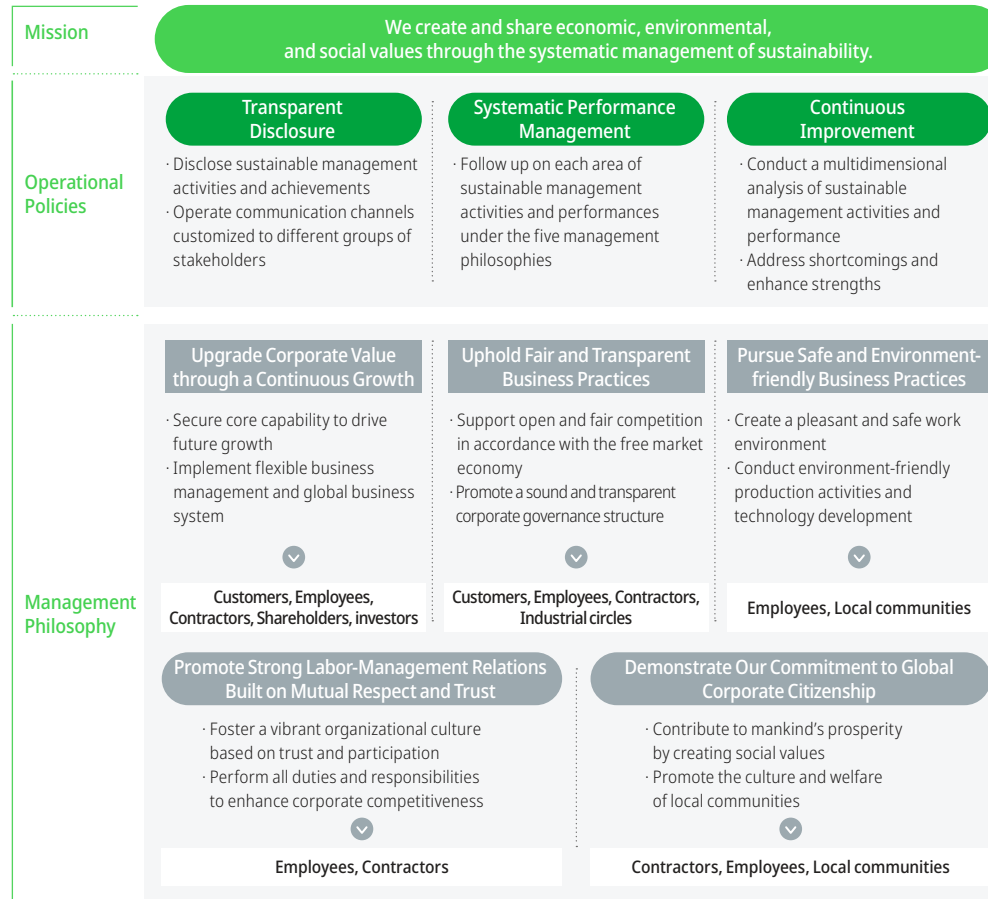
## ESG MANAGEMENT

HD Hyundai Energy Solutions is committed to leading the carbon-free energy transition with a vision of realizing a sustainable future energy ecosystem. To this end, we have introduced not only an environmental management system but also a safety and health management system to effectively operate our factories and actively respond to relevant laws and regulations. Moving forward, we will proactively implement low-carbon green management activities.

## ESG Management System

### ESG VISION

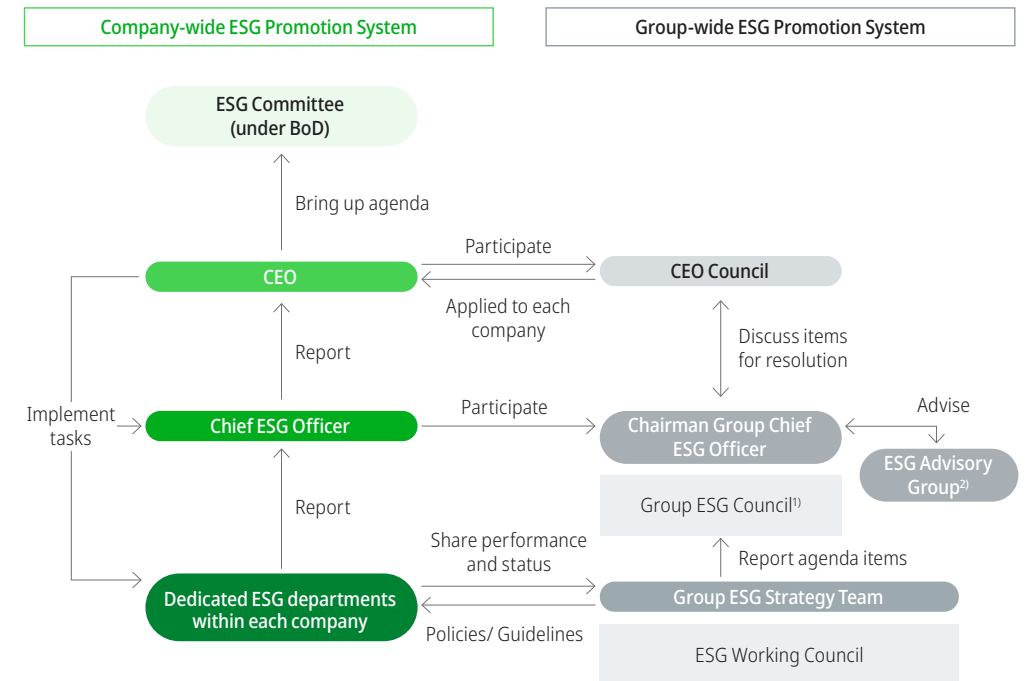
With the mission 'We create and share economic, environmental and social values through the systematic management of sustainability', HD Hyundai Energy Solutions strives to grow into a global solar PV solution company that realizes sustainable growth. To this end, we have set three ESG operational policies of 'Transparent Disclosure', 'Systematic Performance Management', and 'Continuous Improvement.' Based on these policies, we plan and implement activities in each ESG area. Then, we attempt to promote active communication with our stakeholders by disclosing the key achievements.



### ESG GOVERNANCE

HD Hyundai Energy Solutions shares the ESG policies and strategies of HD Hyundai Group. The ESG Committee within the Board decides on the issues related to setting ESG directions, planning, and implementing ESG activities.

We review major ESG issues in cooperation with the ESG Team of HD Hyundai Group and develop proper response measures through consultations.



1) Consisting of Chief ESG Officers of each company  
2) Consisting of outside experts from each ESG area

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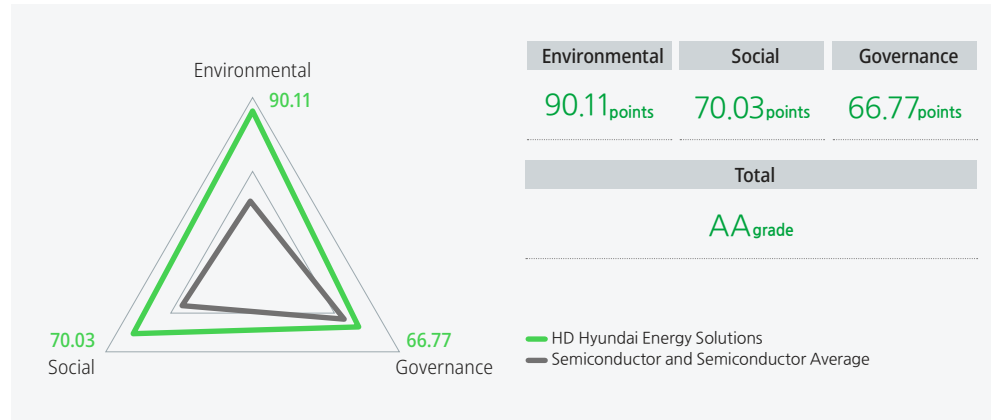
## ESG Management System

### ESG HIGHLIGHT

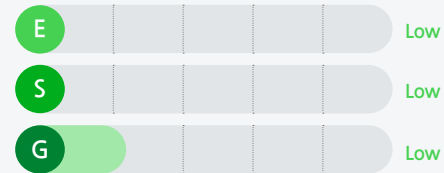
#### 2023 ESG Evaluation Results Analysis

HD Hyundai Energy Solutions has obtained an integrated AA rating for two consecutive years in the ESG evaluation conducted by SUSTINVEST. The highest rating AA was only given to the top 9.2% among all evaluated companies as of the second half of 2023. Based on the improvement tasks identified through this assessment, as well as our mid and long-term goals, we will set the direction for our sustainable management and improve our shortcomings.

Moreover, HD Hyundai Energy Solutions has received outstanding ESG management evaluation results from the Korea Institute of Corporate Governance and Sustainability (KCGS) by achieving a comprehensive rating of A for three years in a row. Moving forward, we will continue to manage non-financial performances through an advanced ESG management system as well as responses to external initiatives.



#### ESG Controversy



| Environmental | Social       | Governance    |
|---------------|--------------|---------------|
| A Excellence  | A Excellence | B+ Acceptable |
| <b>Total</b>  |              |               |
| A Excellence  |              |               |

### 2023 ESG NEWS

#### Environmental

In August 2023, HD Hyundai Energy Solutions acquired the RoHS (Restriction of the Use of Certain Hazardous Substances) certification from the Korea Testing & Research Institute (KTR), which verifies our capability of managing hazardous substances required to produce solar PV modules. RoHS is a regulation that restricts the use of certain hazardous substances within products, which the EU has implemented to reduce harmful impacts on human bodies and the environment during waste treatment such as landfills and incineration and recycling processes. RoHS certification can be obtained if the concentration of 10 hazardous substances, such as lead (Pb), cadmium (Cd), and mercury (Hg), in each component of a product is below 0.01 ~ 0.1% level. HD Hyundai Energy Solutions became the first in Korea to achieve this certification, an effort to meet the market demand for eco-friendly activities.



#### Social

In April 2023, HD Hyundai Energy Solutions organized an on-site drill to prepare for high-risk scenarios at its Eumseong plant, jointly with local fire stations. This drill was conducted by using fire drones to identify information about high-risk targets and secure evacuation routes to enhance on-site response capabilities in case of an emergency. In order to minimize damages to lives and properties in an emergency, prompt initial responses and evacuation are highly important. HD Hyundai Energy Solutions will do its best to minimize damages to lives and properties in case of a fire and mitigate the impacts on neighboring areas.



#### Governance

In 2023, HD Hyundai Energy Solutions organized a workshop for executives and team leaders to internalize the value systems of HD Hyundai Group, thus promoting sustainability management. During the workshop, digitization, decarbonization, and demand for social responsibilities and changes were selected as non-financial risks faced by HD Hyundai Energy Solutions. This workshop was designed to identify such risks and respond to the market conditions requesting any actions to them. We also come up with the top 3 action tasks and Ground Rules to internalize the value system. To implement these tasks, we developed detailed task plans and action plans.

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# Value Creation

## Input

|                       |                     |
|-----------------------|---------------------|
| <b>Total assets</b>   | <b>KRW 502 bil.</b> |
| Total equity          | KRW 371.5 bil.      |
| Market capitalization | KRW 313.1 bil.      |

|   |                      |
|---|----------------------|
| <b>Tangible assets</b>                          | <b>KRW 94.8 bil.</b> |
| Cell production capacity                        | 97,996,489 cells     |
| Module production capacity                      | 2,716,654 modules    |
| No. of domestic/<br>international key worksites | 3 locations          |
| New Facility investments                        | KRW 5.753 bil.       |

|                                 |              |
|---------------------------------|--------------|
| <b>Energy consumption</b>       | <b>780TJ</b> |
| Water consumption               | 516,561 tons |
| Environmental Investment amount | KRW 270 mil. |

|                                    |                   |
|------------------------------------|-------------------|
| <b>Employees</b>                   | <b>235 people</b> |
| Training hours per employee        | 9.1 hours         |
| Average training cost per employee | KRW 0.174 mil.    |

|                          |                  |
|--------------------------|------------------|
| <b>R&amp;D Personnel</b> | <b>37 people</b> |
| R&D Cost                 | KRW 4.84 bil.    |

### Co-existence with local communities

Sharing with the Vulnerable and Living Expense Support for the Marginalized

## Business Model

### Development of Eco-Friendly Products

- Produce PV modules and cells with green technology
- Reduce the carbon footprint of PV module products through aggressive efforts for silicon wafer thinning

### Responsible Procurement

- Come up with a conflict-free mineral policy
- Review the possibility of sustainable growth with suppliers throughout the procurement process, and conclude the contract through a fair process

### Business Activities that Minimize the Environmental Effect

- Establish a green procurement policy for eco-friendly purchasing
- Strengthen efforts for eco-friendly production

### Labor-Management Partnership (LMP)

- Promote co-existing labor-management relations by creating an organizational culture of mutual respect and trust
- Develop a consensus through active internal communication

### Quality Management

- Develop and produce high-efficiency, high-output products
- Achieving world-class quality through globally accepted certification tests



## Output

|                  |                       |
|------------------|-----------------------|
| <b>Sales</b>     | <b>KRW 546.1 bil.</b> |
| Operating profit | KRW 17.5 bil.         |

|                        |                         |
|------------------------|-------------------------|
| <b>Cell production</b> | <b>69,182,160 cells</b> |
| Module production      | 1,603,473 modules       |

|                      |   |
|----------------------|---|
| <b>GHG emissions</b> | <b>41,779tCO<sub>2</sub>e<sub>q</sub></b> |
| Waste discharged     | 7,281 tons                                |
| Waste recycled       | 7,261 tons                                |
| Water discharge      | 360,562 tons                              |

|                              |            |
|------------------------------|------------|
| <b>Female employee rates</b> | <b>18%</b> |
| No. of serious accidents     | 0 case     |

|                                    |                 |
|------------------------------------|-----------------|
| <b>Patent (utility model) held</b> | <b>33 cases</b> |
| Trademarks held                    | 13 cases        |
| R&D completed                      | 3 cases         |

|  |                      |
|--|----------------------|
| <b>Social investments</b>              | <b>KRW 29.0 mil.</b> |
| Volunteering activities of employees   | 56 hours             |
| Financial support for contractors      | KRW 7 bil.           |
| Procurement of green products/ service | KRW 13.8 bil.        |

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# Green Energy

## Green Technology Research

### R&D Organizations

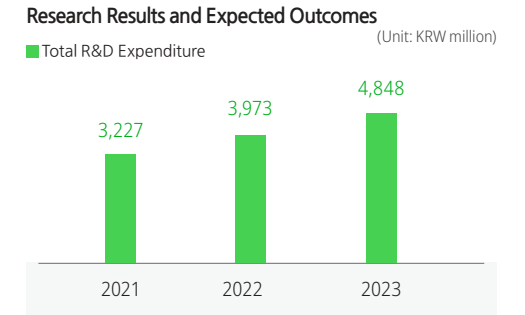
HD Hyundai Energy Solutions carries out R&D activities to consistently deliver optimized solutions, mainly led by the PV R&D Center (Cell Development Team, Module Development Team, and Inverter Technology Team) and the Project Development Team. The PV R&D Center is mainly developing market-oriented product technologies such as the efficiency of solar cells/ modules, improvement of output and reliability, and energy yield simulation and working on R&D activities related to the EPC project. Centering on the R&D Center opened in 2012, we became the first to mass-produce high-efficiency PERC products in Korea. Since then, we have led the advancements in high-efficiency and high-out solar products, including Multi-busbar, Half-cut, bifacial solar modules, and large-area wafer-based module products. Based on these efforts, we achieved our module's increase in the domestic market share to 32% in the second half of 2023. Furthermore, with the development of n-Type solar cells and PV modules, we are poised to transition from existing p-Type to high-power n-Type solar cells in 2024. We have even initiated the development of N-HJT high-efficiency products and tandem technologies. Moving forward, HD Hyundai Energy Solutions will do its best to preemptively reflect the market and customer needs, thereby providing our premium products in a timely manner.

### Dedicated R&D Organizations

| PV R&D Center  |   |
|--|---|
| <p><b>Cell Development Team</b></p> <ul style="list-style-type: none"> <li>- Developing next-generation high-efficiency n-Type cell technologies (TOPCon, HJT/national projects, etc.)</li> <li>- Developing element technologies for next-generation perovskite tandem solar cells</li> <li>- Developing low-temperature electrode materials for HJT-based perovskite tandem solar cells</li> <li>- Improving/ changing cell materials and optimizing processes</li> <li>- Improving design to enhance quality linked with module processes</li> </ul>  | <p><b>Module Development Team</b></p> <ul style="list-style-type: none"> <li>- Developing n-Type silicon-based high-power/high-yield modules technology (design/material/process)</li> <li>- Developing and commercializing module technologies for new applications (design/material/process)</li> <li>- Developing silicon-perovskite tandem module technology</li> <li>- Evaluating new module materials and identifying diversified material suppliers</li> <li>- Managing development/evaluation, module production, and intellectual property (patent)</li> </ul>                     |
| <p><b>Reliability Development Team</b></p> <ul style="list-style-type: none"> <li>- Monitoring reliability of n-Type and tandem products, analyzing and improving causes of problems</li> <li>- Keeping abreast of reliability technology trends for solar cells/ modules and taking preemptive actions</li> <li>- Managing product certifications and staying updated on certification trends for preemptive actions</li> <li>- Developing energy yield prediction/ simulation and performance enhancement technologies for modules</li> <li>- Enhancing the management/ operation efficiency of accredited testing laboratories</li> </ul> | <p><b>Inverter Technology Team</b></p> <ul style="list-style-type: none"> <li>- Developing software/hardware for solar inverters and reviewing mass production designs for new products</li> <li>- Analyzing product specifications and evaluating reliability</li> <li>- Designing systems integrated with Micro Grid, analyzing/ developing new product technologies, and creating solutions</li> <li>- Obtaining domestic and international certifications and managing test records</li> <li>- Providing technical support for solar inverters within operating power plants</li> </ul> |
| Project Development Team   |   |
| <p><b>EPC Team</b></p> <ul style="list-style-type: none"> <li>- Reviewing material technologies and designing shapes for floater structure of floating PV system</li> <li>- Developing floater structure of floating PV system and mooring system</li> <li>- Analyzing environmental conditions of candidate sites for floating PV projects and designing block layouts</li> </ul>   |   |

### PV R&D Center R&D Expenditure

In 2023, HD Hyundai Energy Solutions performed various technology development projects, including developing high-efficiency cells, commercializing new products, and improving PERC cell efficiency. The R&D expenditure consists of direct and indirect costs such as raw material costs, labor costs, and manufacturing expenses related to the execution of R&D activities.



### R&D Performances (2023)

| Research Topic   | Research Results and Expected Outcomes  |
|--|---|
| SE-PERC Cell Efficiency Improvement Technology Development   | <ul style="list-style-type: none"> <li>- Enhance the mass-production process for Bifacial SE-PERC cells</li> <li>- Secure technologies for increasing cell efficiency by improving materials and design</li> <li>- Develop cells using M6 and larger area, thin wafers (applicable to low-carbon module products)</li> </ul>              |
| Development of Vehicle Solar Roof Module Using Curved Glass  | <ul style="list-style-type: none"> <li>- Complete the design and prototype verification of a high-density integrated solar roof</li> <li>- Complete securing the reliability of solar roof technology for vehicles</li> </ul>   |
| Development of High-Efficiency Tunnel Oxide Passivated Electrode Cell/Module   | <ul style="list-style-type: none"> <li>- Develop unit processes and materials for next-generation high-efficiency TOPCon cells</li> <li>- Develop manufacturing processes for mass-production cells and evaluate characteristics of process equipment</li> </ul>  |
| Verification/Evaluation of Mass Productivity for Large-Area n-TOPCon Solar Cell Material/ Equipment  | <ul style="list-style-type: none"> <li>- Develop manufacturing processes for next-generation high-efficiency large-area (M10) n-TOPCon cells</li> <li>- Verify mass productivity of cell manufacturing equipment and materials (based on the Center for Advanced Solar PV Technology)</li> </ul>  |
| Core Material and Process Technology Development for Large-Area Crystalline/Thin Film Silicon Heterojunction (HJT) Solar Modules                           | <ul style="list-style-type: none"> <li>- Develop manufacturing processes for next-generation high-efficiency n-HJT cells and modules</li> <li>- Verify cell manufacturing equipment, materials, process technology/mass productivity (based on the Center for Advanced Solar PV Technology)</li> </ul>                                    |
| Material Development and Prototype Production for Lightweight Curved Solar Hood  | <ul style="list-style-type: none"> <li>- Develop materials and processes for solar hoods that can be attached to car hoods</li> <li>- Secure reliable PV module technology applicable to various curved surfaces</li> </ul>   |
| Development and Demonstration of Road-Appropriate Modules for Safe and Flexible Noise Barriers/Tunnels   | <ul style="list-style-type: none"> <li>- Demonstrate and acquire data on PV noise barriers and tunnels suitable for mass production.</li> <li>- Build a business network for commercializing PV noise reduction facilities</li> </ul>   |
| Advancement of mass production technology for M10 and larger area Crystalline/Thin Film (below 150um) Silicon Heterojunction (HJT) Solar Cells and Modules | <ul style="list-style-type: none"> <li>- Developed mass production technology for M10 and larger solar cells and modules using a pilot line</li> <li>- Develop thinner wafers and low-cost transparent and Ag electrodes to reduce production costs</li> <li>- Conduct LCOE analysis and energy yield verification for modules</li> </ul> |

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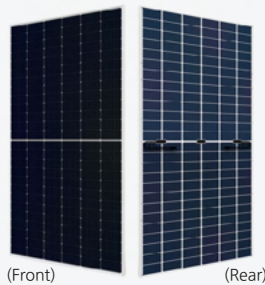
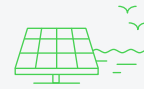
## Green Technology Research

### BUSINESS CASE

#### High-Durability Eco-Friendly Floating Modules

##### Development of n-Type Eco-Friendly Module Technology

As a leading supplier of floating modules in South Korea, HD Hyundai Energy Solutions plans to develop and launch high-durability, eco-friendly models of n-Type TOPCon solar modules. For the KS-certified high-durability eco-friendly modules, the lead concentration must be below 0.005% based on the weight, and the modules must pass lead solubility tests to meet the sanitary safety standards under the Enforcement Decree of the Water Supply and Waterworks Installation Act. We have passed these tests for p-Type PV modules, and by 2023, we have obtained a total of 46 KS high-durability eco-friendly module certifications. Currently, we are preparing to acquire the same certification for the n-Type modules. In this course, we secured the RoHS (Restriction of Hazardous Substances Directive) certification for the materials used in our developing n-Type TOPCon and HJT module models. RoHS is a regulatory standard operated by the EU that can be obtained when every component of a product contains less than 0.1% concentration of 10 harmful substances such as lead, cadmium, and mercury.



#### Floating PV panel of optimum solution

##### High reliability

- High resistance to moisture
- Mechanical robustness (Load and hail)

##### High power & Light weight

- Reduction of system cost

##### Eco-friendly

- Lead-free product (RoHS compatible)

#### Low-Carbon Solar Modules through Reduced Silicon Use

##### Reducing Carbon Emissions through Thinner Silicon Wafers in n-Type Solar Cells

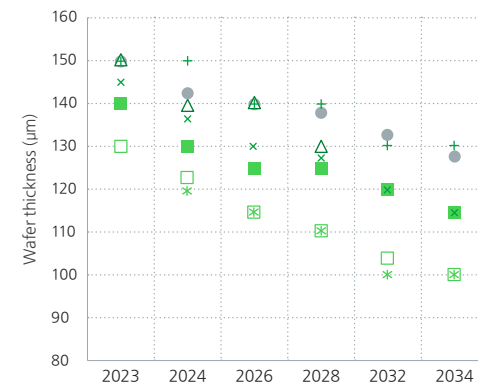
With the rapid development of n-Type PV technology, HD Hyundai Energy Solutions could achieve higher-output solar modules compared to conventional p-Type modules. The n-Type solar cells can secure higher efficiency even when thinner silicon wafers are used than those of p-Type. While existing p-Type solar cells use silicon wafers with a thickness of 150-140 $\mu$ m, n-Type TOPCon solar cells employ wafers thinner than 130 $\mu$ m. In addition, n-Type HJT (Heterojunction) solar cells use silicon wafers that are thinner than 120 $\mu$ m, leading to a reduction of carbon emissions. For example, the carbon emissions of 156pcs M10 modules for n-Type TOPCon solar cells and n-Type HJT solar cells will decrease by 20kgCO<sub>2</sub>-eq/kW and 40kgCO<sub>2</sub>-eq/kW respectively compared to p-Type cells. We will continue our R&D efforts to minimize wafer thickness in n-Type HJT solar cells to 100 $\mu$ m.



#### Trend wafer thickness: n-type mono

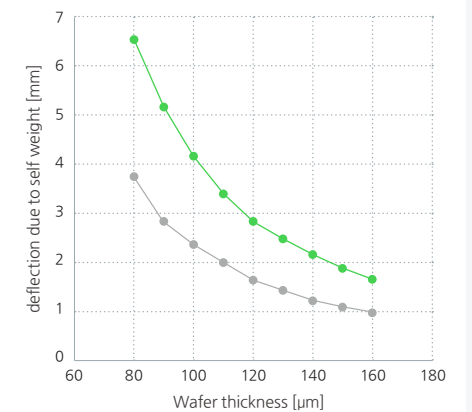
▶ n-type is leading in thickness reduction

- △ p or n-type mono, IBC for  $\leq$  M10 [ $\mu$ m]
- n-type mono, TOPCon for  $\leq$  M10 [ $\mu$ m]
- n-type mono, HJT for  $\leq$  M10 [ $\mu$ m]
- HJT for  $\leq$  M10 [ $\mu$ m]



#### Wafer size

● M12 ● M10



\*n-type is leading the size reduction trend 2034: down to 100  $\mu$ m, HJT is using thinnest wafers

\*\*Data source (ITRPV, a German PV market research institute)



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## Green Products Development

### PERC Solar Cell

Since 2014 when HD Hyundai Energy Solutions produced the PERC high-efficiency solar cells for the first time in South Korea, we have produced p-Type solar cells by adding PERC cells which increased output by reflecting long-wavelength light from the rear side. In 2019, we introduced bifacial solar cell structures, allowing additional power generation from the rear side and improvement of actual energy yield. From the end of 2022, we have manufactured and supplied high-efficiency products by commercializing M6 and M10-sized large-area solar cells.

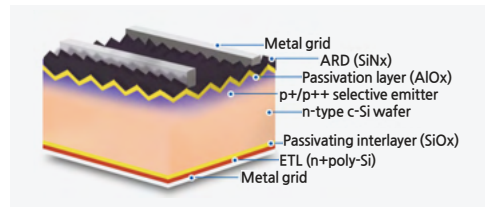
### High-Efficiency n-Type Solar Cell

HD Hyundai Energy Solutions has been working on the development of n-Type solar cells with higher efficiency and longer lifespan than conventional p-Type solar cells. The n-Type solar cells apply n-Type wafers and thin-film technology and display about 1%p higher efficiency compared to existing p-Type solar cells. The n-Type solar cells are classified into TOPCon and HJT solar cells: TOPCon solar cells incorporate an oxide layer between the metal and silicon, thereby minimizing losses in electrodes while HJT solar cells feature a coating of amorphous silicon thin film on crystalline silicon.

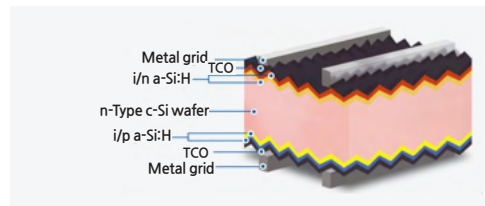
In particular, HJT solar cell products are highly compatible with Tandem technology, a future ultra-efficiency PV technology with over 30% power generation efficiency. Furthermore, the products are technology-intensive that will lead the next-generation PV market. Hyundai Energy Solutions is actively securing future PV technologies through domestic industry-academy-research institute cooperation by initiating the development of large-area Tandem solar cell and module technology.

### PERC Technology-Applied Products List

|                      |             |               |
|----------------------|-------------|---------------|
| Commercial & Utility | · OJ Series | · DualMax™Pro |
|                      | · YJ Series | · DualMax™    |
|                      | · YI Series | · DualMax™    |
|                      | · DI Series |               |
|                      | · VI Series |               |
| Floating Modules     | · UJ Series | · AquaMax™Pro |
|                      | · ZJ Series | · AquaMax™    |
| Residential Modules  | · YJ Series | - Residential |



TOPCon (Tunnel Oxide Passivated Contact)



HJT (Heterojunction Technology)

### PV Modules

The PV modules, the primary products of HD Hyundai Energy Solutions, mainly use electricity in the production process and generate indirect GHG emissions (Scope 2). HD Hyundai Energy Solutions is making efforts to reduce direct and indirect GHG emissions by introducing high-productivity new equipment in the module production process and continuing research to enhance module outputs. Furthermore, as for floating solar module products, HD Hyundai Energy Solutions has minimized the lead (Pb) content and achieved KS certification, being recognized for the durability and eco-friendliness of the floating PV modules. In addition, we have contributed to the reduction of carbon emissions arising from PV module production by developing thinner silicon wafers. As of the end of 2023, HD Hyundai Energy Solutions held 465 carbon emission certifications for its PV module products and in 2023 alone, we obtained 94 certifications.

### BIPV Modules

HD Hyundai Energy Solutions provides Building Integrated Photovoltaic (BIPV) solutions, which seamlessly integrate PV modules into building materials. This high-efficiency system utilizes PV modules as architectural materials used for exterior walls, roofs, and windows, eliminating the need for additional installation space. The BIPV system of HD Hyundai Energy Solutions are environmental-friendly solution that can apply solar power plants mostly built in forests to urban environments. In addition, our BIPV solution uses low-iron glass that can minimize transmission losses, making it 'Color BIPV', enabling the expression of various colors with the same energy yield as general modules. In 2021, HD Hyundai Energy Solutions installed BIPV systems at two locations within the Eumseong factory, which include a research building and a retaining wall for demonstration. The BIPV solution will be developed into products and subject to sales and marketing through further development.



BIPV solution installed within the Eumseong Factory site

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## Green Products Development

### Green Production and Procurement

#### Green Procurement Policy

HD Hyundai Energy Solutions, a company leading the innovation in the green energy industry, established green procurement policies in 2022 to manage the environmental impacts of its business operations in all directions. The policies, designed to encourage the procurement and use of eco-friendly products, make it a principle to prioritize procurement of products with class 1 low carbon certification when purchasing materials required to produce PV modules. These policies are applied to all items, including raw and auxiliary materials required for production activities in worksites, office supplies, consumables, living goods, as well as civil engineering, construction, electrical, chemical, and equipment items where eco-friendly alternatives are available. In 2023, KRW 13.8 billion was allocated to eco-friendly procurement.

\*KRW 1,300 = USD 1

#### Improvement of Manufacturing Process Environmental Efficiency

HD Hyundai Energy Solutions' Solar Module Plant 3 in Eumseong, Chungbuk, operates 24 hours a day to produce solar modules. The production process, which takes between 9 to 12 hours, involves 25 workers per line and operates in two shifts around the clock. Since the introduction of unmanned automation robots throughout the Eumseong plant in 2021, the yield of 500-watt (W) solar modules has improved to approximately 99.3% to 99.5%, representing an increase in production efficiency by about 20% compared to before the introduction. This improvement is due to the real-time monitoring of equipment status and operational conditions, which has brought the defect rate close to zero. HD Hyundai Energy Solutions continuously strives to minimize the environmental impact of its product processes by reducing the rate of defective products and enhancing energy efficiency.

#### Definition of Green Products

- 1 Environment Mark Certification Products under the Environmental Technology Development and Support Act
- 2 Excellent Recycling Products under the Act on the Promotion of Saving and Recycling of Resources
- 3 Low Carbon Products according to the Amendment to the Act on the Promotion of Purchase of Green Products
- 4 Materials for solar modules certified by the Korea Energy Agency, which quantify the total GHG emissions per unit output during the production process
- 5 Energy Efficiency Rating 1-2 Products under the Energy Use Rationalization Act
- 6 Products that reduce harmful substances such as lead, mercury, cadmium, chromium, asbestos, PCB, etc.
- 7 Products with reduced packaging weight, refillable and returnable containers, etc.
- 8 Products certified by overseas environmental marks
- 9 Products recognized as eco-friendly by relevant department heads



Production robots at HD Hyundai Energy Solutions' Module Plant in Eumseong, Chungbuk

## Investments in Eco-Friendly Equipment

### CASE 1

#### Improving Power Efficiency through Cooling Tower Renovation

To enhance energy efficiency, HD Hyundai Energy Solutions undertook renovations of its cooling systems in 2023, resulting in a reduction of approximately 753,409 kWh (KRW 109,244,273) in electricity consumption. The renovation of cooling towers at Module Plant 3 and Cell Plant was carried out in March and April, respectively. Through these efforts, about 26% of electricity for Module Plant 3, and about 8% of electricity for Cell Plant were saved respectively. This achievement contributed to a reduction of approximately 350tCO<sub>2</sub>eq in GHG emissions.

#### Electricity Cost Saving Status

(Unit: kWh)

| Category       | Electricity Consumption Before | Electricity Consumption After | Remarks         |
|----------------|--------------------------------|-------------------------------|-----------------|
| Module Plant 3 | 1,826,481                      | 1,288,088                     | About 26% saved |
| Cell Plant     | 3,120,543                      | 2,905,527                     | About 8% saved  |

\*calculated based on the same date's power usage from the previous year

#### NEXT STEP :: Reviewing the Life Cycle Assessment (LCA) for PV Modules

HD Hyundai Energy Solutions is planning to establish a mid- and long-term roadmap for its carbon footprint by reviewing the LCA of PV modules.

### CASE 2

#### Improvement of Effluent Flow Meters

HD Hyundai Energy Solutions replaced the converters (transmission instruction parts) of the effluent flow meters and at the same time, carried out flow meter calibration. This replacement and adjustment were undertaken to enhance the efficiency of effluent monitoring and to smoothly operate the Korea Environment Corporation (KECO)'s TMS (Total Management System) equipment. The work was done to manage risks associated with environmental pollutants.

#### Flow meter installation locations



#### NEXT STEP :: Compliance with Waste Module Recycling

As the Environmental Protection Guarantee System (obligations for waste module recycling) has been effective from Jan. 2023, manufacturers, importers, and sellers of solar modules are required to fulfill obligations for the recycling or retrieval of waste modules. HD Hyundai Energy Solutions proactively joined the Waste Module Recycling Association (E-Circular Governance) to comply with these recycling obligations of waste modules. We are committed to meeting the purpose of this system and fulfilling our environmental and social responsibilities.

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## Environmental Management Governance

### Environmental Management System

#### Environmental Management Organizations

HD Hyundai Energy Solutions discusses and reviews ESG-related issues centered around the ESG Committee to protect the environment and practice sustainable management. The ESG Committee, established under the BoD, discusses issues related to identifying environmental risks and opportunities, setting strategies and goals, and reviewing details of a mid-to-long-term roadmap. The ESG Committee also monitors the company's ESG strategic directions and action plans, and matters related to fulfilling social responsibilities. Furthermore, the ESG Committee develops the ESG capacities of the company and reviews support for internalizing ESG practices.

#### ESG Committee Meetings

| Agenda Item   | Date          |
|---|---------------|
| Approval of Climate Change Response Strategy              | Oct. 24, 2023 |
| Report on 2023 ESG Evaluation Results and 2024 Work Plans | Dec. 12, 2023 |

#### Environmental Management System Certification

HD Hyundai Energy Solutions has established an environmental management system in accordance with ISO 14001, the international standard for environmental management framework, and obtained ISO 14001 from the accredited certification body to ensure transparency and objectivity of its system. We are committed to meeting the demands of various stakeholders and adhering to global standards. Moving forward, HD Hyundai Energy Solutions plans to actively promote low-carbon green management activities.



ISO 14001 Certification

#### Environmental Management Policies

HD Hyundai Energy Solutions aims to minimize the environmental impact of its business activities and to practice environmental management by establishing and implementing policies and objectives related to safety, health, and the environment. Furthermore, we are considering joining the environmental initiatives to perform environmental management in a more proactive manner.

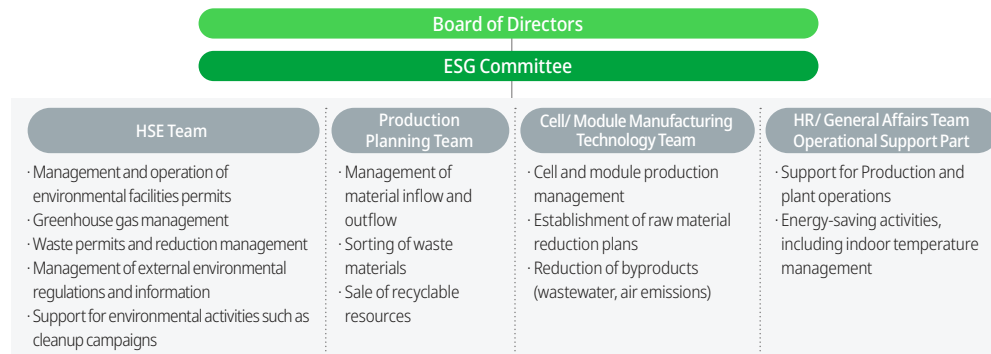
#### Safety·Health·Environment Policies

|  |   |
|--|---|
| Protecting the Lives of Workers                | <ul style="list-style-type: none"> <li>· Strict Compliance with Laws and Safety Standards</li> <li>· Supervisor-Centered Safety Management</li> </ul>                                 |
| Creating a Safe Work Environment               | <ul style="list-style-type: none"> <li>· Continuous improvements of the working environment</li> <li>· Operation of a prevention-focused health management system</li> </ul>          |
| Establishing an Eco-friendly Corporate Culture | <ul style="list-style-type: none"> <li>· Low carbon emissions through GHG management</li> <li>· Enhanced activities for environmental pollution prevention and improvement</li> </ul> |

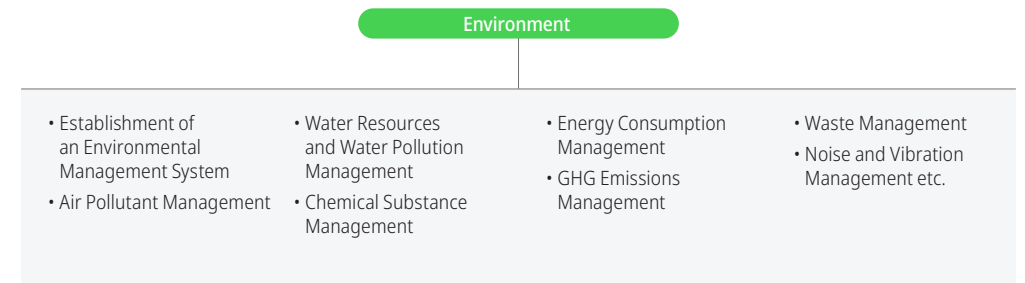
#### Spreading Environmental Management Policies

HD Hyundai Energy Solutions intends to cooperate with contractors to practice ethical management and fulfill its environmental responsibilities by developing a Code of Conduct for Contractors, pursuing sustainable management. In this context, all contractors are required to comply with HD Hyundai Energy Solutions' Code of Conduct and meet the standards for human rights, safety, health, environment, and ethics.

#### Environmental Management Organizational Structure



#### Environmental Pillar in Code of Conduct for Contractors



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### Environmental Management Promotion Strategy

#### Environmental Management Performance Management

##### Setting Environmental Management Goals

HD Hyundai Energy Solutions is actively promoting eco-friendly management to improve environmental performance and achieve sustainable growth. In this regard, we aim to minimize the environmental impacts resulting from our business operations by setting annual environmental goals and operating businesses in consideration of such goals.

##### 2024 Environmental Goals

| Goal 1<br>Daily Status Check                                    | Goal 2<br>Zero Exceedances                            | Goal 3<br>Monthly or more Inspection      |
|---|---|---|
| Thorough maintenance and management of environmental facilities | Strict compliance with environmental safety standards | Enhanced separation and disposal of waste |

##### Environmental Management Performance Evaluation

HD Hyundai Energy Solutions manages performance according to its environmental performance evaluation system. Every year we conduct internal and external environmental assessments to verify and improve implementation performance.

##### Environmental Performance in 2023

| Category                               | Unit                | 2023 Performance |
|--|---------------------|------------------|
| GHG Emissions                          | tCO <sub>2</sub> eq | 41,779           |
| Water Use Intensity                    | ton/ KRW bil.       | 946              |
| NOx Emissions                          | ton                 | 1.15             |
| SOx Emissions                          |                     | 0.06             |
| Proportion of Eco-friendly Procurement | %                   | 4.59             |
| Eco-friendly Investments               | KRW 100 mil.        | 2.7              |
| Total Energy Consumption Intensity     | TJ/ KRW bil.        | 1.4              |

##### Violations of Environmental Regulations

HD Hyundai Energy Solutions strictly adheres to environmental regulations while buying environmental liability insurance (ELI) to build a workplace that minimizes environmental impacts. In 2021, we received a corrective order for exceeding permissible water discharge limits. Since then, however, we have established and implemented thorough follow-up measures and prevention strategies, paying attention to avoid the recurrence of similar violations. As a result, there were no violations of environmental regulations in both 2022 and 2023.

#### Spreading Environmental Management Internally and Externally

##### Providing Environmental Management Education

HD Hyundai Energy Solutions provides safety education on hazardous chemical substances for all employees. In addition, we manage education programs to provide environmental and hazardous chemical managers with the opportunities to complete mandatory education programs.

##### Promoting Chemical Safety Community Activities

HD Hyundai Energy Solutions is committed to preventing chemical accidents and improving the safety management capacities of chemical handling facilities. To this end, we cooperate with neighboring SMEs to carry out chemical safety community activities. In 2023, we jointly organized various activities, including a chemical safety campaign, training on the use of personal protective gear, drills for responding to potential hydrofluoric acid leaks during intake, and visits to facilities handling hazardous chemicals. Through such collective training with neighboring companies, we can have a chance to exchange information and protocols to ensure more prompt support for disaster prevention equipment in the event of an accident.

##### Chemical Safety Campaign

In August 2023, HD Hyundai Energy Solutions organized a campaign to prevent potential chemical accidents at its Eumseong plant. The campaign was participated by all employees working at the Eumseong plant as well as representatives from our contractors. The event featured educational sessions aimed at preventing chemical accidents and raising safety awareness.

##### Environmental Education for Employees in 2023

| Program Titles  | Unit | Completion Rate |
|---|------|-----------------|
| Safety Education for Hazardous Chemical Substances                            |      | 100             |
| Legally Mandatory Education for Environmental and Hazardous Chemical Managers | %    | 100             |



Eumseong plant chemical safety campaign

## Environmental Management

### Environmental Impacts Management

#### Climate Change Responses

##### GHG Emissions Management

HD Hyundai Energy Solutions is committed to reducing GHG emissions and achieving zero environmental accidents. To this end, we exert various efforts, including regular inspections, decommissioning CO<sub>2</sub> welders, adjusting gas supply pressures, installing LED lights, and minimizing the operation of air compression equipment. Furthermore, we have introduced plasma-type equipment for 1st scrubbers used in the production process to minimize N<sub>2</sub>O emissions.

##### Energy Consumption and Production Management

To minimize energy consumption, HD Hyundai Energy Solutions operates its facilities by transforming them into low-carbon and high-efficiency facilities. Moreover, we produce renewable energy through four in-house solar power plants and two external solar power plants. Leveraging these facilities, we plan to directly minimize the energy consumption of our company in 2024. In addition, HD Hyundai Energy Solutions has invested in replacing and supplementing components of cooling facilities, witnessing a decrease in quarterly electricity consumption by 251 MWh after the investment and saving annual energy costs of approximately KRW 90.786 million.

##### GHG Emissions

| Category                          | Unit                         | 2021   | 2022   | 2023   |
|-----------------------------------|------------------------------|--------|--------|--------|
| Total Emissions                   |                              | 27,366 | 38,240 | 41,779 |
| Direct Emissions <sup>1)</sup>    | tCO <sub>2</sub> eq          | 2,143  | 3,565  | 6,162  |
| Indirect Emissions <sup>2)</sup>  |                              | 25,223 | 34,675 | 35,617 |
| Emissions Intensity <sup>3)</sup> | tCO <sub>2</sub> eq/KRW bil. | 46.1   | 38.8   | 76.5   |

- 1) Scope of calculating direct emissions (Scope 1): Eumseong Factory  
 2) Scope of calculating indirect emissions (Scope 2): Eumseong Factory, Bundang Office  
 3) Sales: based on consolidated financial statements in the Business Report

##### Energy Consumption

| Category                       | Unit        | 2021 | 2022 | 2023 |
|--------------------------------|-------------|------|------|------|
| Total Consumption              |             | 539  | 753  | 780  |
| Direct Energy Consumption      | TJ          | 12   | 29   | 37   |
| Indirect Energy Consumption    |             | 527  | 724  | 744  |
| Energy Intensity <sup>4)</sup> | TJ/KRW bil. | 0.9  | 0.8  | 1.4  |

- 4) Sales: based on consolidated financial statements in the Business Report

##### Energy Yield

| Category                   | Unit | 2021    | 2022    | 2023    |
|----------------------------|------|---------|---------|---------|
| Total Energy Yield (solar) | MWh  | 4,324.1 | 4,785.6 | 4,711.5 |

#### Environmental Impact Management

##### Water Use Reduction

HD Hyundai Energy Solutions monitors water usage consumed in the production process on a daily basis under the supervision of the HSE (Facilities) Team. We categorize water resources used in the production process into intake water (water withdrawal) and wastewater generation (consumption within the factory). Then we check the status every day based on guidelines for each category and keep daily records of water management. In particular, we carry out real-time monitoring of pollutant concentrations at Hanbeolcheon (Han River Basin), the final discharge point, by using TMS facilities to prevent contamination of the river and regional water resources. Furthermore, we try to reduce water use as well as wastewater generation by measuring the consumption of water resources used in the production for each item such as DI (Deionized Water) and PCW (Post-Consumer Water), and sharing the measurement results with operating and production departments.

##### Water Pollutant Management

HD Hyundai Energy Solutions has established internal environmental standards that are 40% stricter than legal limits to manage final discharge water. We manage pollutants' concentrations on a real-time basis through TMS (Total Monitoring System) inspections and monitoring to strictly prevent harmful and pollutant substances from exceeding the basic thresholds. We also operate a wastewater treatment facility (with a capacity of 1,800 tons a day) to handle wastewater generated both from the production process and from work sites. Furthermore, we have introduced peroxide removers and nitrification starters to reduce the concentration of nitrogen in treated wastewater, thereby optimizing biological treatment processes. In this way, we have made great endeavors to preserve water quality and the environment.

##### Water Withdrawal and Wastewater Generation

| Category                   | Unit          | 2021    | 2022    | 2023    |
|----------------------------|---------------|---------|---------|---------|
| Total Water Withdrawal     |               | 382,650 | 417,887 | 516,561 |
| Total Wastewater Treated   | ton           | 304,124 | 356,076 | 360,562 |
| Intensity Water Withdrawal | ton//KRW bil. | 645     | 424     | 946     |

- \*Scope of data calculation: Eumseong Factory

##### Water Pollutant Emissions

| Category | Unit                | 2021         | 2022  | 2023  |       |
|----------|---------------------|--------------|-------|-------|-------|
| TOC      | Emissions           | kg           | -     | -     | 505   |
|          | Intensity Emissions | kg/ KRW bil. | -     | -     | 0.9   |
| BOD      | Emissions           | kg           | 243   | 338   | 82    |
|          | Intensity Emissions | kg/ KRW bil. | 0.4   | 0.3   | 0.1   |
| SS       | Emissions           | kg           | 487   | 506   | 367   |
|          | Intensity Emissions | kg/ KRW bil. | 0.8   | 0.5   | 0.7   |
| T-N      | Emissions           | kg           | 5,170 | 2,845 | 1,895 |
|          | Intensity Emissions | kg/ KRW bil. | 8.7   | 2.9   | 3.5   |

- \* Scope of data calculation: Eumseong Factory

- \*\* According to amendments to the Water Environment Conservation Act, the organic matter measurement indicator was updated from COD to TOC

- \*\*\* Historical COD data is included on p.50

## Environmental Management

### Air Pollutants Management

HD Hyundai Energy Solutions has established internal environmental standards that are 50% stricter than legal limits to manage air pollutants. When we make new investments in the cell plant, we also remove the use of nitric acid (HNO<sub>3</sub>), a main culprit of NO<sub>x</sub> gas emissions, to completely prevent NO<sub>x</sub> from being emitted in the process.

### Waste Management

HD Hyundai Energy Solutions manages various types of waste generated in the production process (such as waste plastics, paint, sludge, wood, and glass) by separating the waste through segmented collection places. These wastes are duly treated by a registered professional waste treatment company. Moreover, we have increased the recycling rate and significantly saved waste disposal charges by diverting general wastes from the work site to recycling companies, which were incinerated in the past. As a result, the waste recycling rate for 2023 reached 99.7%.

### Air Pollutants Emissions

| Category        |                     | Unit         | 2021   | 2022   | 2023   |
|-----------------|---------------------|--------------|--------|--------|--------|
| NO <sub>x</sub> | Emissions           | ton          | 1.7    | 4.2    | 1.2    |
|                 | Intensity Emissions | ton/KRW bil. | 0.0029 | 0.0043 | 0.0021 |
| SO <sub>x</sub> | Emissions           | ton          | 0.8    | 0.0    | 0.1    |
|                 | Intensity Emissions | ton/KRW bil. | 0.0013 | 0.0000 | 0.0001 |
| Dust            | Emissions           | ton          | 3.1    | 0.7    | 2.1    |
|                 | Intensity Emissions | ton/KRW bil. | 0.0052 | 0.0007 | 0.0038 |

\* Scope of data calculation: Eumseong Factory

### Waste Discharges

| Category               | Unit | 2021    | 2022    | 2023    |
|------------------------|------|---------|---------|---------|
| Total Treatment Amount |      | 4,762.6 | 7,601.3 | 7,281.4 |
| Recycled               | ton  | 4,755.6 | 7,584.0 | 7,260.9 |
| Incinerated            |      | 7       | 17      | 20.5    |
| Landfilled             |      | 0       | 0       | 0       |
| Recycling Rate         | %    | 99.9    | 99.8    | 99.7    |

\* Scope of data calculation: Eumseong Factory

### Chemical Substance Management

HD Hyundai Energy Solutions handles a variety of chemical substances at its Eumseong plant in Chungbuk. We identify the risks of incoming chemical products before we decide on the intake to respond to relevant laws and regulations. Furthermore, we monitor in real-time the status of safety valves including chemical leakage detectors through a comprehensive situation room to fully prevent potential environmental accidents caused by hazardous chemical substances. We also strive to build a safe local community by sharing instructions on chemical use and our chemical accident prevention plans and establishing an emergency contact network with residents in the regions where our business facilities are based.

### Conservation of Biodiversity

HD Hyundai Energy Solutions is committed to contributing to biodiversity conservation. To this end, we conducted environmental cleanup activities in collaboration with the Seongnam-si Volunteer Center. We tried to achieve the conservation of biodiversity, one of our ESG improvement tasks for 2023, through plugging and the removal of invasive plant species at the Tancheon Freshwater Fish Wetland Ecological Garden with the participation of willing employees. Participants walked from the public parking lot to the entrance of the Ecological Park while collecting trash along the way. Inside the Ecological Park, participants removed invasive wild plants to promote the growth of the nationally protected species, the 'Prickly Water Lily.'

### Waste Discharges

| Category            | Unit          | 2021    | 2022    | 2023    |
|---------------------|---------------|---------|---------|---------|
| Total Discharges    |               | 4,762.6 | 7,601.3 | 7,281.4 |
| General Waste       | ton           | 3,599.7 | 5,169.4 | 4,978.7 |
| Designated Waste    |               | 1,162.9 | 2,431.9 | 2,302.7 |
| Intensity Discharge | ton/ KRW bil. | 8.0     | 7.7     | 13.3    |

\* Scope of data calculation: Eumseong Factory

### Nationally Protected Species in Seongnam-si

| Category | Birds   | Amphibians and Reptiles                             | Insects    | Plants   |
|----------|---|---|------------|--|
| Grade 1  | Chinese merganser                                       |   |            |  |
| Grade 2  | Long-billed ringed plover, Goshawk, Sparrow hawk, Hobby | Narrow-mouth frog, Seoul pond frog, Korean Ratsnake | Vuillefroy | Prickly Water Lily, Northern water hemlock, White aconite root |

### Nationally Protected Species in Eumseong-gun

| Category | Birds  | Amphibians and Reptiles | Insects          | Plants         |
|----------|--|-------------------------|------------------|----------------|
| Grade 1  | Chinese merganser, White-tailed sea eagle  | Suwon tree frog         |                  | European otter |
| Grade 2  | Eagle, Chinese sparrow hawk, Sparrow hawk, Hobby, Goshawk, Long-billed ringed plover |                         | Argynnis nerippe | Leopard Cat    |

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# Safety and Health

## Safety and Health Governance

### Roles and Responsibilities of Governance

#### Safety and Health Operational System

HD Hyundai Energy Solutions holds the Occupational Safety and Health (OSH) Committee every quarter by selecting representatives of labor and management to ensure a safe and pleasant work environment for its employees. The OSH Committee designates an occupational safety manager, toxic chemicals controller, hazardous materials safety manager, fire safety manager, and safety and health manager. The supervisor in the safety and health field should complete the safety and health education and training courses to fully understand prevention and response measures against potential safety accidents. Moreover, we perform regular and occasional risk assessments and conduct internal audits at least once a year based on our internal audit regulations in the field of safety and health management.

#### Operation of OSH Committee

HD Hyundai Energy Solutions formulates plans and countermeasures to prevent safety risks to employees and public health disasters by forming the OSH Committee. The Committee meets every quarter to review and decide significant OSH issues and in cases where materiality issues arise, it holds a meeting when necessary to provide a prompt response. The deliberation, decisions, mediations, and resolutions made by the OSH Committee are distributed and instructed to employees through internal communication channels.

#### OSH Committee Structure



#### OSH Committee Agenda (2023)

| No. | Details  |
|-----|--|
| 1   | Repairing potholes on the road in front of the demonstration complex   |
| 2   | Performing maintenance and improvements on forklifts                   |
| 3   | Implementing parking enforcement measures behind the module factory    |
| 4   | Conducting leveling work to fix depressions in the outdoor parking lot |
| 5   | Repairing automatic handcarts to respond to increased material weight  |
| 6   | Securing Pedestrian Pathways in the Module Factory                     |
| 7   | Installing ventilation fans in the module factory offices              |
| 8   | Repairing Leaks in the Cell Factory                                    |
| 9   | Improving Restroom Hygiene in the Cell Factory                         |

## Safety and Health Risks Management

### Safety and Health Risks Management Activities

#### Safety and Health Goals

HD Hyundai Energy Solutions has endeavored to internalize safety management at the company level. For example, we establish safety and health management policies and comply with relevant laws and regulations through the acquisition of ISO 45001 certification. Under the overarching theme of 'Prevention of Serious Accidents', we have made multi-faceted efforts to achieve Zero incidents of fire, explosion, and leakage, zero occupational illness, and zero environmental accidents. We built a safety and health training system to consistently provide education and training programs. Furthermore, we hold the OSH Committee every quarter to identify key tasks and take improvement measures, ensuring employees' health and safe work environments.

#### Risk Assessments

According to Article 44 (Preparation and submission of Process-Safety Reports) of the Occupational Safety and Health Act, HD Hyundai Energy Solutions should prepare a Process Safety Report through the review of the OSH Committee as it is classified into a business with hazardous or dangerous facilities. HD Hyundai Energy Solutions operates the Process Safety Management (PSM) system to prevent serious industrial accidents. Based on this PSM system, all departments prepare and implement standard work instructions and hazardous assessment statements every year. The scope of the assessments covers all tasks and equipment. In the risk assessment of wastewater facilities for 2023, we analyzed hazard factors by work stages for a total of 10 tasks and defined safety and health measures to mitigate such risks. By doing so, we are committed to ensuring the safe job performance of employees.

#### Statistics on Industrial Accidents

| Category  | Unit                   | 2021 | 2022 | 2023 |
|---|------------------------|------|------|------|
| Fatalities  | Persons                | 0    | 0    | 0    |
| Lost Time Injury (LTI)                                | Cases                  | 0    | 1    | 0    |
| Lost Time Injury Frequency Rate (LTIFR)               | Cases/million hours    | 0    | 2.1  | 0    |
| Industrial accident rate                              | %                      | 0    | 0.4  | 0    |
| Severity rate   | Days lost/ 1,000 hours | 0    | 0.3  | 0    |
| Occupational Illness (OI)                             | Cases                  | 0    | 0    | 0    |
| Occupational Illness Frequency Rate (OIFR)            | Cases/million hours    | 0    | 0    | 0    |
| Absence rate  | %                      | 0    | 0    | 0    |
| Near-Miss Frequency Rate (NMFR) for regular employees | %                      | 0    | 0    | 0    |
| Near-Miss Frequency Rate (NMFR) for contract workers  | %                      | 0    | 0    | 0    |



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## Safety and Health Risks Management

### Internal Audits and Facilities Inspection for Safety and Health

HD Hyundai Energy Solutions conducts internal audits at least once a year based on its internal audit regulations in the field of safety and health management. Furthermore, we inspect worksites at least once a month to identify potential risk factors. Companywide efforts are made to manage fire detection equipment as one of the risk factors. Also, we establish hazard prevention plans and hold regular checks on pressure vessels, gas facilities, elevators, safety of chemical supply tanks, safe operation of conveyor belts and robots, and fire safety. In the cell production sites, production equipment and materials used for handling hazardous substances, and protective gears are subject to inspection while in the module production sites, the inspection usually targets power units such as conveyors and forklifts. In the utility sites, we inspect CCSS, CGSS, and TMA rooms to prevent probable safety accidents that may occur in office environments.

### Health Management Programs

HD Hyundai Energy Solutions carries out various activities to prevent diseases and enhance the health of its employees. We provide regular medical check-ups (general/ special) for employees and their families every year and support comprehensive medical check-ups for long-serving employees and their families. In addition, we support annual flu vaccinations for all employees to prevent diseases and promote the health of employees.

### Response to Emergencies and Disasters

HD Hyundai Energy Solutions developed a manual to respond to various emergencies and disasters and has continuously trained its employees accordingly. In particular, we pay extra attention to preparing for natural disasters such as typhoons and earthquakes to protect our employees and minimize damage to the company. We also regularly organize fire drills jointly with local fire stations to minimize human and property losses with swift response actions in the case of company-wide emergencies or safety accidents.



Joint drill with Eumseong Fire Station

### Safety and Health Education

HD Hyundai Energy Solutions is dedicated to minimizing safety risks through safety and health meetings, regular safety education programs, and short-term project safety training. We consistently provide mandatory regular safety education for supervisors, duty-changing employees, and new hires to raise the safety awareness of our employees. In 2023, a total of 203 employees completed the safety and health education programs, recording 24 education hours per person. Furthermore, to protect employees from potential risks of various hazardous chemicals, we install the Material Safety Data Sheets (MSDS) to let employees check at any time information on the substances used in each work process including their properties, hazards, and emergency response measures in case of exposure or contact. Moreover, in cases where external workers are involved in certain jobs, we provide safety education and workplace management supervised by the HSE team, thereby preventing safety accidents.

### Safety and Health Education Statistics

| Category                   | Unit    | 2021  | 2022  | 2023  |
|----------------------------|---------|-------|-------|-------|
| Participants               | Persons | 120   | 147   | 203   |
| Education hours            | Hours   | 2,880 | 3,528 | 4,872 |
| Education hours per person | Hours   | 14    | 24    | 24    |
| Participation rate         | %       | 56    | 59    | 95    |

**안전·보건·환경 방침**

안전·보건·환경 관리 체계를 구축하고 전 직원이 안전하고 쾌적한 환경에서 근무할 수 있도록 다음 사항들을 지속적으로 수행하고 발전시켜 나갈 것을 전 임직원 및 모든 이해관계자에게 밝힌다.

- 근로자의 생명 보호
  - 법규 및 안전기준 준수 철저
  - 관리감독자 중심 안전관리 추진
- 안전한 작업환경 조성
  - 지속적인 작업환경 개선 전개
  - 예방중심의 보건관리체계 운영 추진
- 친환경 지향 기업문화 정착
  - 온실가스 관리를 통한 저탄소 배출
  - 환경오염 예방 및 개선 활동 강화

박종환  
대표이사 박종환  
현대에너지솔루션주식회사

**2023년 안전·보건·환경 목표**

"중대재해 예방하자"

- 피해 목표 누를 ZERO 달성
  - 공장안전관리 이행 철저 (5' 등급 이상 0건)
  - 법규 준수 철저 (과태료 부과 2건 이상 0건)
  - 관리감독자 업무 이행 철저 (1회 이상 0건)
  - 병문장 안전관리 철저 (중요 전 안전관리 100% 이행)
- 직업병 발생 ZERO 달성
  - '직스/누역' 감지기 점검 철저 (1회 이상 0건)
  - 안전보호구 사용 철저 (안전보호구 관리 상태 1회 이상 0건)
- 환경사고 ZERO 달성
  - 환경실적 유지, 관리 철저 (1회/일 이상 0건)
  - 환경안전 기준 준수 철저 (1건 초과 0건 관리)
  - 폐기물 분리 배출 강화 (1회 이상 0건)

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# Human-centric Management

## Human Rights Management

### Human Rights Management System

#### Human Rights Governance

To consider human rights issues in all its business operations, HD Hyundai Energy Solutions has established the governance required to practice human rights management and deliberated relevant issues. The Human Rights Management Committee consists of the Chief ESG Officer from HD Hyundai Energy Solutions, making human rights-related agenda subject to report and approval of the ESG Committee under the BoD.

#### Roles and Responsibilities (R&R) of Human Rights Management Organizations

The ESG committee, a sub-committee of the BoD, is the highest decision-making body regarding human rights issues at HD Hyundai Energy Solutions. Key issues related to human rights are reported to the BoD through the ESG Committee for discussion and decision. The Human Rights Management Committee makes decisions on major human rights management issues and reviews the performance related to such decisions. The Committee is chaired by the Chief ESG Officer and consists of executives and team leaders from related organizations. The Committee is responsible for formulating human rights management strategies and policies and giving approvals on the regulations to practice human rights management. Departments related to human rights collaborate with each other to provide human rights education, monitor and report human rights issues, conduct human rights impact assessments, and identify areas for improvement.



#### Human Rights Management Process

HD Hyundai Energy Solutions has practiced human rights management with an aim to establish a human rights management system and spread a culture of advocating human rights, thereby realizing a society that embraces diversity and respects all stakeholders. To this end, HD Hyundai Energy Solutions has improved risks through the human rights management process so that all the stakeholders affecting us, directly and indirectly, receive due respect for their dignity and rights. We strive to ensure no areas are left behind in terms of human rights across all business sectors of HD Hyundai Energy Solutions by taking mitigation measures against identified and assessed human rights risks and monitoring the effectiveness of such measures.

#### Human Rights Management Process



#### Human Rights Management Declaration

As the first step toward human rights management, HD Hyundai Energy Solutions proclaimed the Human Rights Management Declaration in compliance with the 'UN Universal Declaration of Human Rights' and 'UN Guiding Principles on Business and Human Rights.'

#### HD Hyundai Energy Solution's Human Rights Management Declaration

HD Hyundai Energy Solutions, as a future-leading energy solution company, declares that it will fulfill its social responsibilities for human rights to its executives and employees, as well as customers, stakeholders, and communities by actively practicing human rights management that values human dignity and values.

HD Hyundai Energy Solutions will respect and support the values of human rights, labor, environment, anti-corruption, etc. set forth in international standards and norms such as the 'United Nations Universal Declaration of Human Rights' and the 'United Nations Guiding Principles on Business and Human Rights' and make an active effort to implement them.

HD Hyundai Energy Solutions will strive to prevent human rights violations from occurring in all business operations that are directly or indirectly affected by the company. The Board of Directors, the Chief ESG Officer, and related organizations will form a continuous governance system and will establish and implement human rights management practices that specifically stipulate the establishment of human rights management policies, operation of human rights management committees, human rights impact assessment, and remedies for human rights violations.

In particular, we recognize the safety and health issues of employees (including employees of suppliers) and the environmental impact on local communities that may occur in the Eumseong factory as major human rights issues and intend to continuously manage human rights risks by monitoring and focusing on these matters.

HD Hyundai Energy Solutions will make further efforts to strengthen human rights management so that the human rights management charter can be applied to and complied with by not only HD Hyundai Energy Solution's executives and employees, but also all internal and external stakeholders, including customers, shareholders, business partners, local communities, and the government.

#### Human Rights Management Practice Regulations

HD Hyundai Energy Solutions has established the Human Rights Management Practice Regulations to protect the human rights of its employees and stakeholders and implement human rights management systematically. These regulations stipulate general principles and structure of human rights management, the Human Rights Management Committee, and relief measures in the case of human rights violations. We have gone through the review by the Compliance Management Office and the deliberation by the Human Rights Management Committee to establish these regulations.

#### Compositions of Human Rights Management Practice Regulations



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## Human-centric Management

### Enhancement of Labor-Management Partnership (LMP)

#### Labor-Management Council

##### Holding of Labor-Management Council

HD Hyundai Energy Solutions holds Labor-Management Council meetings every quarter in accordance with the Act on the Promotion of Employees' Participation and Cooperation. This Council consists of three representatives each from the employer side and employee side to enhance working conditions and wellbeing of employees. The Council freely discusses the measures in a horizontal and open atmosphere to enhance the working conditions of employees and to reach collective agreements.

##### Labor-Management Council Meetings

| Category           | Details   |
|--------------------|---|
| No. of Meetings    | Four times (every quarter)  |
| Major Achievements | <b>Additional Designation of Substitute Holidays</b><br>· Buddha's Birthday, Christmas  |
|                    | <b>Support for Recreation Facilities</b><br>· 300,000 points per year   |
|                    | <b>Support for Wedding Venues and Facilities</b><br>· Free provision of wedding halls and equipment<br>· Support up to KRW 2 million for wedding facilities |

#### Facilitating Labor-Management Communication

##### Activating Communication within the Company

HD Hyundai Energy Solutions encourages a horizontal and open organizational culture to achieve successful organizational innovation. To this end, we hold a CEO meeting and regular town hall meetings by departments, practicing open communication. Through the town hall meetings, the CEO and executives in charge listen to anonymous questions from employees and give answers in real-time, so that the management can have the chance to directly understand employees' opinions and create a culture of transparent and open communication.

##### Operating Hi-Square

HD Hyundai Energy Solutions strives to listen to its employees by operating Hi-Square, a platform that allows employees to make anonymous suggestions and exchange their ideas freely. Suggestions made through Hi-Square are forwarded to the Labor-Management Council for discussion, and excellent proposals are actively implemented. As such, we actively endeavor to build and maintain a cooperative labor-management relationship.

##### Recruitment and Retention

|             | Category                 | Unit    | 2021 | 2022 | 2023 |
|-------------|--------------------------|---------|------|------|------|
| Recruitment | Total number of recruits | Persons | 83   | 81   | 38   |
|             | Entry-level employee     | Persons | 62   | 57   | 27   |
|             | Experienced employee     | Persons | 17   | 24   | 7    |
|             | Local recruits           | Persons | 4    | 0    | 4    |
| Turnover    | Total turnover           | Persons | 69   | 44   | 52   |
|             | Turnover rate            | %       | 32.4 | 17.7 | 22.1 |
|             | Voluntary turnover       | %       | 20.7 | 11.7 | 10.6 |
| Retention   | Average years of service | Years   | 8.9  | 7.9  | 9.1  |
|             | Male                     | Years   | 10.4 | 9.0  | 10.3 |
|             | Female                   | Years   | 2.4  | 2.6  | 3.6  |

\*Historical data was revised due to confirmation of missing historical data and changes in data management standards

## Human-centric Management

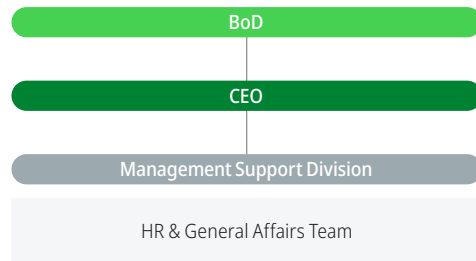
### Building Capacities of Employees

#### Capacity-building and Performance Rewards

##### Talent Management Organizations

HD Hyundai Energy Solutions has established and operated the governance system for talent management to foster talented individuals who will lead industrial innovation, enabling such talents to focus on their duties and pursue self-fulfillment in a rewarding workplace. The talent management organization strives to enhance the skills of employees in line with the changing market environment and technological demands, pursuing an innovative and flexible organizational culture.

##### Talent Management Governance



#### Capacity Building and Self-Development

##### Securing Talented Personnel

Recognizing that outstanding talents are the key drivers of corporate growth, HD Hyundai Energy Solutions is committed to recruiting and nurturing such individuals. To this end, we have established a transparent and fair recruitment process to objectively evaluate the capacities and personal qualities of applicants. In 2023, in line with the growth of the solar energy business, we additionally hired 32 new employees in this field and converted 14 high-performing contract workers to regular employment through the transparent evaluation process.

##### Statistics on Employees

| Category                       | Units   | 2021 | 2022 | 2023 |
|--------------------------------|---------|------|------|------|
| Total No. of employees         | Persons | 213  | 248  | 235  |
| Regular                        | Persons | 164  | 190  | 202  |
| Ratio of regular employees     | %       | 77   | 77   | 86   |
| Non-regular                    | Persons | 49   | 58   | 33   |
| Ratio of non-regular employees | %       | 23   | 23   | 14   |

##### Strengthening Capabilities of Employees

HD Hyundai Energy Solutions has established a competitive training system and learning infrastructure to cultivate talent that will drive the company's future growth. After joining the company, employees are provided with tailored education programs in terms of roles and timing to fit the rank, duty, and position of employees. Regardless of whether they are regular or non-regular employees, all the employees can benefit from such education programs. In addition, employees are offered training programs on the themes of developing next-generation leaders, nurturing convergent talent, and cultivating job experts and global talent. In particular, to actively respond to Digital Transformation (DT) in office environments, we conduct company-wide training programs to shift employees' perception on digital transformation by dividing the programs into two areas 'cultural dissemination' and 'workforce development.'

##### Cultivating Leadership

HD Hyundai Energy Solutions offers the HHI Group Leader Course (HLC) and the HHI Group Technical Leader Course (HTLC), the training programs of HD Hyundai Group, to cultivate leaders who will drive business innovation with insights into rapidly changing business environments. These courses are provided to selected future leaders in the Action Learning approach, which focuses on resolving challenges in the key tasks assigned to each business sector.

HD Hyundai Energy Solutions will continue to provide unwavering support for the growth of next-generation leaders.

#### Performance Evaluation and Compensation

##### Performance Evaluation System

HD Hyundai Energy Solutions aligns organizational goals with team members' KPIs to ensure systematic and fair performance evaluations and make proper rewards. Team members receive regular coaching and feedback for strategic tasks from their team leaders to not only attain performance targets but also increase individual capacities. Since the company's physical split in December 2016, HD Hyundai Energy Solutions has continuously improved the compensation (wage) system and employee benefits to ensure the stable lives of its employees. We clearly set goals through a top-down approach based on KPIs, and provide various compensation according to the performances achieved, including salary increases, year-end bonuses, and promotions, thus enhancing employee motivation and engagement.

##### Performance-based Compensation System

HD Hyundai Energy Solutions has established a fair and transparent evaluation system by managing compensation, promotions, cultivation, and low-performing employees based on personnel evaluations. Through the Management by Objectives (MBO) and the Key Performance Indicators (KPI), we determine evaluation ratings based on individual targets and the level of achievement. Such evaluation ratings are used as a basis for various personnel systems. To increase transparency and fairness, we disclose the results of the first, the second, and the adjustment evaluations. We also introduced an appeals procedure to accept the grievances of employees in operating the personnel evaluation system. All employees are subject to personnel evaluation twice a year.

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## Building Capacities of Employees

### Enhancing Employee Benefits

#### Employee Welfare System

HD Hyundai Energy Solutions has continued to strengthen its compensation (wage) and employee welfare systems to enhance employees' quality of life and improve sustained work engagement. Also, to encourage long-term service among both existing and new employees, we have adopted a flexible working hours system since 2021. The system was introduced in tune with diversified individual lifestyles to enhance the efficiency of working hours and has been operated according to the detailed rules on working hours management. Employees can establish monthly work plans or modify them at any time through the Hi-HR system. Working overtime or at night is automatically recorded to be reflected in the wages of employees. Moreover, we operate the PC OFF system which automatically turns off employees' PC once the planned working hours end. We also operate a half-day leave system in four-hour increments.

#### Welfare Enhancement System

|  |   |
|--|---|
| <b>Strengthened Maternity Protection</b>     | Created an organizational atmosphere where employees can freely use welfare systems related to pregnancy, childbirth, and childcare<br>▶ All eligible employees (7 persons) took parental leave |
| <b>Balance between Work and Life</b>         | Introduced and implemented a selective work hours system where employees can determine their work time within the prescribed working hours  |
| <b>Retirement Planning Support Education</b> | Operate education programs to support retirement planning to help employees maintain a healthy and safe life after retirement   |
| <b>Retirement Plan</b>                       | Introduced a Defined Contribution (DC) plan that is settled annually for employees subject to the Peak Wage System (56 years and older)   |

#### Employer Welfare System

| Category                    | Details  |
|-----------------------------|--|
| Housing                     | · Support for housing loan interest and settlement allowances  |
| Family life support         | · Support for family events<br>· Encouragement of maternity and parental leave<br>· Operation of workplace daycare centers and support for educational expenses          |
| Leisure support             | · Provision of vacation and paid leave<br>· Support for long service leave   |
| Medical support             | · Support for medical expenses<br>· Medical check-ups (including family members)   |
| Retirement planning support | · Support and education for retirement planning, retirement pension education<br>· Operation of a retirement plan  |
| Work culture advancement    | · PC OFF system (Automatic computer shutdown system)<br>· Smart work system and flexible working hours<br>· Operation of a dedicated organization for handling grievance |
| Others                      | · Operation of a welfare shopping mall<br>· Provision of psychological/legal counseling system   |

#### Enhancing Maternity Protection

HD Hyundai Energy Solutions has various support systems in place for employees with childcare responsibilities. We form an organizational atmosphere where employees can freely utilize the systems supporting pregnancy, childbirth, and childcare while supporting the stable return of employees having ended childcare leave by reassigning them to their previous duties. HD Hyundai Energy Solutions does not tolerate any disadvantages or discrimination against employees using maternity protection systems. From 2024, we plan to continue active support other than legal requirements by offering dramatic financial compensation and flexible working arrangements from pregnancy to before/ and after childbirth.

#### Parental leave

| Category  | Unit   | 2021 | 2022 | 2023 |
|---|--------|------|------|------|
| Employees on parental leave   | Male   | 2    | 6    | 3    |
|   | Female | 1    | 1    | 0    |
| Employees returning to work after parental leave                            | Male   | 4    | 4    | 4    |
|   | Female | 1    | 3    | 0    |
| Employees working for 12 or more months after returning from parental leave | Male   | 100  | 100  | 100  |
|   | Female | %    | 100  | 100  |

\*Data for 2022 was modified due to missing data in the previous report.

#### Statistics on Parental Leave

| Category  | Details  |
|---|--|
| Work hours before and after childbirth (including miscarriage and stillbirth) | · Work at night and on holidays: not allowed for employees who are pregnant or gave birth less than a year ago<br>· Work overtime: not allowed for pregnant workers, only allowed within the limits defined in the Labor Standards Act for employees who gave birth less than a year ago<br>· Possible reduction of working hours during the early and late stages of pregnancy (2 hours per day)                                  |
| Medical check-up time for pregnant women                                      | · Provide time for weekly pregnancy medical check-ups (max. once a week, four hours per check-up)  |
| Maternity leave (before and after childbirth)                                 | · Grant 90-day leave before and after childbirth (120 days for multiple births)  |
| Miscarriage/ stillbirth leave   | · Provide leave according to the number of pregnancy weeks (max. 90 days)  |
| Parental leave and reduced working hours during childcare                     | · Applicable to employees with children under the age of 8 or in 2nd grade or below in an elementary school<br>· Allowed upon the request of parental leave according to the Equal Employment Opportunity and Work-Family Balance Assistance Act, with a guarantee of 1-year reduced working hours during childcare even though parental leave was used<br>· Unused parental leave can be used as additional reduced working hours |
| Parental leave  | · Applicable to employees with children under the age of 8 or in 2nd grade or below in an elementary school  |
| Infertility treatment leave   | · Grant up to 3 days per year (paid for the first day) for infertility treatment such as artificial insemination or in vitro fertilization   |
| Breastfeeding time guaranteed   | · Provide 30 minutes of paid breast-feeding time twice a day for female employees with infants under one year old  |

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# Quality Management

## Quality Management Governance

### Quality Control System

#### Establishing a Quality Control system

HD Hyundai Energy Solutions has built and operated a quality control system to enhance customer satisfaction and trust and to meet the diverse demands of various stakeholders. As part of such efforts, we have obtained and maintained ISO 9001 (Quality Management System), ISO 45001, and ISO 14001 certifications from the ISO certification body (KIWA). In addition, in the PV inverter business unit, we produce and supply KS-certified string inverters and central inverters developed with proprietary technology.

### Quality Management Policies

#### Establishing and Operating Quality Management Policies

HD Hyundai Energy Solutions has established and operated quality management policies to provide high-quality products and services. To evolve into a solar PV solution leader through strengthened quality competitiveness, we are strategically pursuing the following activities.



ISO 9001

### Quality Management Policies

- 1 Strengthen global quality competitiveness
  - Promote activities to enhance quality competitiveness
- 2 Secure cost competitiveness through improved quality
  - Ensure long-term reliability through operating a testing lab certified by international accredited testing labs such as UL (Underwriters Laboratories) and VDE (Verband der Elektrotechnik)
- 3 Promote customer-oriented quality management activities
  - Strengthen quality control for customer satisfaction

## Quality Management Promotion Direction

### Quality Objectives and Detailed Action Plans

#### Advancing PV Products

HD Hyundai Energy Solutions has made continuous efforts to strengthen the quality competitiveness of its PV products. As for the floating PV module, it is designed as a bifacial module to absorb sunlight from the backside of the module, thereby maximizing power generation efficiency. In addition, our products boast lasting performance with exceptional durability even in unfavorable weather conditions such as heavy snow and strong winds, and harsh environments with high levels of ammonia and salt. Also, LID (Light Induced Degradation) and PID (Potential Induced Degradation) prevention technologies are applied to minimize output degradation that can occur after module installation, providing higher power generation returns.

Furthermore, HD Hyundai Energy Solutions' R&D Center is an accredited testing laboratory for PV modules, designated by UL and VDE, internationally renowned certification bodies. This Center verifies the durability and reliability of module materials and conducts performance and long-term reliability tests for developed and mass-produced modules. We provide 12-year product warranty and 25-year performance warranty service to for customer safety and satisfaction after sales.



UL's Certification for Accredited PV Module Testing Laboratory

#### Quality Controls for Contractors

HD Hyundai Energy Solutions conducts quality evaluations for new contractors to minimize quality risks. For existing contractors, we conduct long-term quality evaluations to ensure the consistent quality of products. In 2023, we evaluated 11 contractors based on the criteria such as quality management system, and quality controls for materials, processes, and products. To strengthen quality assurance for products, we applied a Quality Assurance Agreement (QAA) and have continued quality improvement activities for both in-house and outside contractors, including managing non-conformities and changes in the 4M (Man, Material, Machine, Method) as well as non-conformities.

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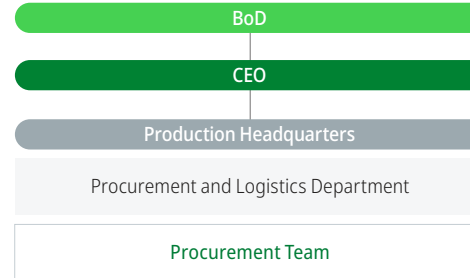
## Supply Chain Management

### Supply Management System

#### Supply Chain Governance

HD Hyundai Energy Solutions recognizes that sustainability issues within the supply chain may have impacts on the reputation and management activities of the company, thus strengthening the contractor management system. Through the supply chain management organizations, we discuss ways to build a sustainable supply chain, and at the same time, monitor potential risk factors in contractors. The operating departments perform the registration, maintenance, and evaluation of contractors transparently in compliance with relevant laws and regulations.

#### Supply Chain Management Governance



#### Establishing a Supply Chain Code of Conduct

Upholding the core value of "Just, Fair, and Legitimate Performance," HD Hyundai Energy Solutions strives to build a healthy corporate ecosystem that supports the growth and development of contractors to achieve co-prosperity. To this end, we align the Code of Conduct for Contractors with the supply chain management policies of HD Hyundai Group's affiliates. We will establish a supply chain ESG management system model to monitor supply chain issues and risks and will implement the model in phase.

#### Summary of Code of Conduct for Contractors



## Supply Chain ESG Risk Management

### Sustainable Supply Chain Management System

#### Sustainable Supply Chain Operational Policies

To build a healthy corporate ecosystem, HD Hyundai Energy Solutions applies the supply chain operational policies of HD Hyundai Group encompassing a wide range of areas such as human rights management, safety and health, environment, and ethics.

#### HD Hyundai Supply Chain Operational Philosophy

| Group's Supply Chain Operational Philosophy   | Sustainable Supply Chain  |
|---|---|
| <p>HD Hyundai complies with its supply chain operational philosophy (transparency, legality, fairness) and four commitments recommended by the Fair Trade Commission to develop transparent and reasonable transaction practices in its supply chain operations and contribute to establishing a fair transaction order in subcontracting. In addition, HD Hyundai conducts supply chain inspections and promotes communication with contractors on a regular basis to seek opportunities to supplement or improve current procurement policies and strives to operate a sustainable supply chain with contractors.</p> | <p>HD Hyundai believes that raising the ESG standards of contractors within our value chain is a critical task to build a sustainable supply chain. Starting with supporting ESG management activities within the supply chain, our group is strengthening the supply chain management system at the group level. Since 2023, the 'establishment of supply chain ESG management system and information disclosure' has been included in the Group's ESG KPIs, linking supply chain ESG issues to compensation for executives and gradually broadening the scope of application.</p> |

#### Conflict-free Minerals Policy

Acknowledging the sustainability issues arising from minerals extracted in conflict regions, HD Hyundai Energy Solutions has established and implemented a Conflict-free Minerals Policy to contribute to rooting out these problems. Conflict minerals refer to the four main minerals (tantalum, tin, tungsten, and gold) illegally extracted in nine countries including the Democratic Republic of Congo (Sudan, Rwanda, Burundi, Uganda, Congo, Zambia, Angola, Tanzania, and Central African Republic). The extraction of these minerals often results in various social problems such as human casualties, human rights violations in neighboring regions, and environmental pollution. In accordance with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, HD Hyundai Energy Solutions endeavors to ensure responsible mineral procurement. Furthermore, we encourage our contractors to join the efforts toward responsible mineral procurement.

#### Conflict Minerals Due Diligence Process

| Step 1   | Step 2   | Step 3  | Step 4  | Step 5   |
|--|--|---|---|--|
| <p><b>Raise Awareness Among Contractors</b></p> <p>Request Tier 1 contractors to submit consents to non-use of conflict minerals and broaden the scope to lower-tier contractors</p> | <p><b>Investigate the Use of Conflict and High-Risk Area Minerals in the Supply Chain</b></p> <p>Investigate and monitor the information on minerals and smelters used by Tier 1 contractors</p> | <p><b>Conduct Reasonable Due Diligence and Verification of Investigation Results</b></p> <p>Conduct on-site inspections of the information submitted by contractors and share best management practices</p> | <p><b>Identify and Assess Risk Factors in the Supply Chain</b></p> <p>Classify risk levels and conduct follow-up management based on the results of on-site inspections</p> | <p><b>Develop Risk Improvement Plans and Report Relevant Information</b></p> <p>Impose transaction sanctions on contractors using non-certified smelters and recommend obtaining third-party certification</p> |

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### Supply Chain ESG Risk Management

#### ESG Risk Assessment for Contractors

##### ESG Risk Assessment Indicators for Contractors

HD Hyundai Energy Solutions has developed a set of indicators for evaluating ESG risks, considering domestic laws and regulations and international initiatives. These indicators are updated online, allowing contractors to conduct self-assessments. Based on the supporting evidence attached to the answers submitted during self-assessments, we conduct data verification.

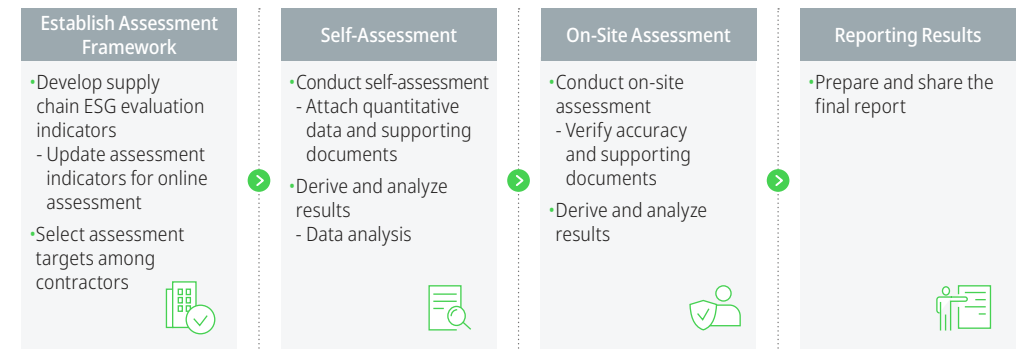
##### Risk Assessment Indicators Structure

| Category               | Assessment Indicators   |
|------------------------|---|
| Labor and Human Rights | Forced and voluntary labor, child and young worker labor, working hours, wages and benefits, humane treatment, non-discrimination, freedom of association   |
| Safety and Health      | OHS system and training, occupational safety, emergency response, industrial accidents, industrial hygiene, physical labor, safety maintenance of machinery and equipment, food/hygiene and housing |
| Environment            | Environmental permits and reporting, pollution reduction, hazardous substance management, waste disposal, air pollution, water resource management, energy and GHG emissions                        |
| Ethics                 | Anti-corruption and conflict of interest prevention, privacy protection, unfair trade prevention, intellectual property protection, responsible material procurement                                |
| Management System      | Norms, performance management, contractor relations and management  |

##### Contractor ESG Risk Assessment Procedures

HD Hyundai Energy Solutions conducts ESG risk assessments for its contractors to enhance their ESG management practices, thereby expanding downstream customers and strengthening response capabilities to domestic and international market regulations such as the EU's Corporate Sustainability Due Diligence Directive (CSDDD). To ensure effective assessments, we have developed an evaluation system by setting up a set of indicators. In 2023, we conducted contractor ESG risk assessments including online self-assessments and on-site evaluation, with the participation of a total of 30 contractors.

##### Contractor ESG Risk Assessment Process





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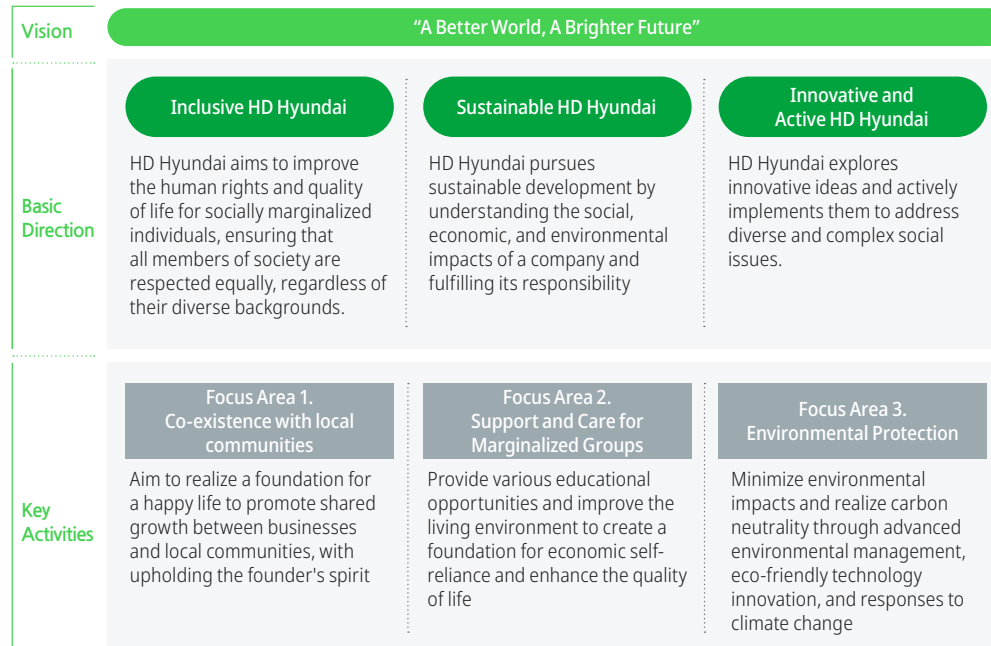
## Social Contribution Promotion Direction

### Social Contribution Vision

#### Social Contribution Structure

HD Hyundai Energy Solutions strives to create a warm and sound society under the vision of "A Better World, A Brighter Future." To attain this goal, we promote social contribution activities in the following basic directions: participatory activities involving employees; sustainable activities in collaboration with the Group; and empathetic activities valuing social responsibility and sincerity. In addition, we set three core projects in connection with SDGs, including caring for marginalized groups, promoting co-existing with local communities, and supporting the independence of future generations. With these projects, we support those in the blind spots of society and help children realize their dreams.

#### Core Value



### HD Hyundai 1% Nanum Foundation

The HD Hyundai 1% Nanum Foundation is a non-profit organization created to foster a healthier society, in collaboration with HD Hyundai employees. The foundation was established to build a warm society to help marginalized neighbors by combining 1% of employees' voluntary salary donations with 99% of hopeful energy. This initiative was expanded to the whole group companies in Jan. 2020. In 2023, a total of approximately KRW 7.2 billion was donated from over 8,000 employees' salary contributions and corporate matching funds. Through this donation, the foundation carried out more than 200 public interest projects throughout the year.

#### 2023 Activities of HD Hyundai 1% Nanum Foundation

| HAPPY   |  | DREAM   |   |
|---------|--|---------|---|
| Date    | Activities   | Date    | Activities  |
| Jan. 18 | Support for vulnerable groups for the Lunar New Year                       | Apr. 6  | Support for training biological sample sorters for individuals with severe disabilities |
| Jan. 30 | Free lunch support for low-income elderly                                  | Apr. 27 | Environmental improvement project for children's living facilities                      |
| May 19  | Support for single-parent education and training                           | Jul. 17 | HD119 (Support for recovery from heavy rainfall damage)                                 |
| Sep. 26 | Support for vulnerable groups for Chuseok (Korean Thanksgiving holidays)   | Dec. 19 | HD Hyundai Honor Award Ceremony   |
| Oct. 13 | Scholarship support for vulnerable high school and middle school students  |         |   |
| Dec. 15 | Year-end charity flea market   |         |   |
| Dec. 26 | Support program for disabled artists' independence and artistic activities |         |   |

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### Social Contribution Promotion Direction

#### Local Community Contribution Activities

##### Sharing for Vulnerable Groups

HD Hyundai Energy Solutions has continued support activities for local elderly community centers and low-income households in the Eumseong region, where its production plant is located. We donate supplies on holidays every year and in 2023, we donated a total of KRW 5.5 million worth of dried fish sets and rice to vulnerable households selected by the Soi-myeon Administrative Welfare Center and elderly community centers in Soi-myeon, Eumseong.

##### Living Cost Support for Marginalized Groups

To support the independence of future generations and foster families, HD Hyundai Energy Solutions has implemented welfare support programs for child-headed families within the Eumseong area. In 2023, we provided a total of KRW 4.8 million in living expenses to four single-parent families and children in foster care with economic difficulties selected by the Eumseong-eup Town Office. We will continue to conduct support programs for children in foster families, contributing to the future generation's independence.

##### Employees' Blood Donation

To contribute to the spread of blood donation culture and stable blood supply, employees at HD Hyundai Energy Solutions have actively participated in blood donation since 2020 on a voluntary basis. In 2022, we signed a partnership for regular blood donation with the Korean Red Cross Seoul Southern Blood Center to conduct organized blood donation activities. In Dec. 2023, under the leadership of HD Hyundai, a blood donation campaign was held at the group level by setting up a blood donation bus at the GRC (Global Resource Center). As a result, over 300 employees voluntarily participated in the event by combining both pre-registered and on-site participants. This event also received a blood donation certificate to contribute to alleviating treatment costs for children with cancer in need of blood transfusion. To spread the values of sharing and life-saving, we will continue these activities more actively.

##### Scholarship Support Program

HD Hyundai Energy Solutions is dedicated to ensuring quality education that serves as a solid foundation for future talent and enhancing lifelong learning opportunities. As part of the industry-academy cooperation, we partnered with Yonsei University to nurture global talent, donating a total of KRW 10 mil. in scholarships to the Global Leadership Center (GLC) on two occasions. Furthermore, as a project to foster next-generation talent, we donated a total of 8.8 mil. in scholarships to Eumseong High School and Maegoe High School, located in the Eumseong region where its business operations are based.



Sharing for Vulnerable Groups



Scholarship Support Program



Employees' Blood Donation



Living Cost Support for Marginalized Groups

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## Governance

### BoD Composition

#### Board Composition Status

HD Hyundai Energy Solutions has formed a professional and independent Board of Directors (BoD) to realize its management philosophy and protect the interests of stakeholders in a balanced manner. As of the first half of 2024, the BoD of HD Hyundai Energy Solutions consists of two inside directors and three outside directors. Each director possesses extensive knowledge and industry experience necessary for corporate management in areas such as business administration, economy, finance and accounting, and law.

#### BoD Composition

| Category          | Name           | Position | Major Career   | Committees  |
|-------------------|----------------|----------|--|---|
| Inside Directors  | PARK JONG HWAN | Chairman | Current) CEO of HD Hyundai energy Solutions                          | Outside Director Recommendation Committee<br>ESG Committee                  |
|                   | KANG SEOK JOO  | Director | Current) Managing director, Management Planning 1 Office, HD Hyundai | -   |
| Outside Directors | OH JEONG KU    | Director | Former) Advisor, Hyundai Accounting Corporation                      | Outside Director Recommendation Committee<br>Audit Committee/ ESG Committee |
|                   | YEO HWAN SEOP  | Director | Current) Lawyer, YEO HWAN SEOP Legal Office                          | Outside Director Recommendation Committee<br>Audit Committee/ ESG Committee |
|                   | KIM SEONG MOON | Director | Current) Professor, Business School of Yonsei University             | Outside Director Recommendation Committee<br>Audit Committee/ ESG Committee |

#### Board Skills Matrix

| Category               | PARK JONG HWAN | KANG SEOK JOO | OH JEONG KU | YEO HWAN SEOP | KIM SEONG MOON |
|------------------------|----------------|---------------|-------------|---------------|----------------|
| Leadership             | ●              | ●             | ●           | ●             | ●              |
| Risk management        | ●              | ●             | ●           | ●             | ●              |
| Finance/ accounting    |                |               | ●           |               |                |
| Policy/ administration | ●              |               | ●           | ●             | ●              |
| Sales/ marketing       | ●              | ●             |             |               | ●              |
| Law/ regulation        | ●              |               |             | ●             |                |
| Year of appointment    | 2021           | 2022          | 2019        | 2024          | 2019           |

#### Appointment Procedures for Directors

HD Hyundai Energy Solutions appoints directors at the general meeting of shareholders as stipulated by the Commercial Act. Candidates for directors are nominated by the BoD and the Outside Director Recommendation Committee. With the notice of convening a general shareholders meeting, personal information about the nominees, recommenders, and their relationship with major shareholders is disclosed.

#### Securing Independence of Directors

HD Hyundai Energy Solutions ensures a sound and transparent decision-making process by composing a majority of its board members as outside directors. All committee chairpersons within the board are also selected from these outside directors. According to the Corporate Governance Charter of HD Hyundai Energy Solutions, outside directors must not have any special relationships with major shareholders, management, or affiliated companies. To guarantee this, all outside directors submit a confirmation upon their appointment which states they have no significant interests with the company. In addition, after the appointment, if any board resolution involves a specific interest for an outside director, they are prohibited from exercising their voting rights on that matter, which is an attempt to ensure rational decision-making within the BoD.

#### Enhancing Diversity among Directors

HD Hyundai Energy Solutions strives to secure diversity within the BoD to decide upon agenda issues from various perspectives and enhance operational efficiency. In this regard, we actively consider a wide range of diversity factors such as gender, race, religion, ethnicity, nationality, and cultural background when selecting nominees for the board directors. HD Hyundai Energy Solutions stipulates diversity of the Board in Article 5 of the Corporate Governance Charter and complies with the commitment.

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### BoD Operation

#### Functions of BoD

The BoD of HD Hyundai Energy Solutions decides on major issues related to basic management policies and business execution while supervising the duties performed by directors. Furthermore, the BoD is responsible for establishing management strategies by identifying the varied interests of internal and external stakeholders and making key decisions. It also plays a critical role in preemptively responding to risks through an integrated risk management system, thereby enhancing the corporate values of HD Hyundai Energy Solutions and realizing customer satisfaction in the rapidly changing global market.

#### BoD Operation Performance

| No.             | Date          | Agenda Items   | Decision             |
|-----------------|---------------|--|----------------------|
| 1 <sup>st</sup> | Feb. 06, 2023 | Approval of the 7th Financial Statements   | Approved as proposed |
|                 |               | Approval of the 7th Business Report  | Approved as proposed |
|                 |               | Change in the Payment Limit for Executive Compensation   | Approved as proposed |
|                 |               | Report on the 2022 Internal Accounting Control System Operational Status                                       | Reported             |
| 2 <sup>nd</sup> | Feb. 24, 2023 | Approval of the convocation of the 7th regular general meeting of shareholders and the purpose of the meeting  | Approved as proposed |
|                 |               | Report of 2022 Internal Accounting Control System Operational Status Evaluation                                | Reported             |
|                 |               | Report of Fair Trade Self-Compliance Status  | Reported             |
| 3 <sup>rd</sup> | Mar. 27, 2023 | Approval of appointment of CEO   | Approved as proposed |
|                 |               | Approval of appointment of BoD Chairman and deciding the order of acting chairs in the absence of the chairman | Approved as proposed |
|                 |               | Appointment of Outside Director Recommendation Committee Members   | Approved as proposed |
| 4 <sup>th</sup> | Apr. 26, 2023 | Appointment of ESG Committee Members   | Approved as proposed |
|                 |               | Report on 2023 Q1 Business Performance   | Reported             |
| 5 <sup>th</sup> | Jul. 25, 2023 | Report on 2023 H1 Business Performance   | Reported             |
|                 |               | Report of Evaluation Results for Compliance Control Standards Operation  | Reported             |
| 6 <sup>th</sup> | Sep. 22, 2023 | Approval of facility investments   | Approved as proposed |
| 7 <sup>th</sup> | Oct. 24, 2023 | Approval of establishing an overseas subsidiary  | Approved as proposed |
|                 |               | Report on 2023 Q3 Business Performance   | Reported             |
| 8 <sup>th</sup> | Dec. 12, 2023 | Setting of record date for shareholders  | Approved as proposed |
|                 |               | Approval of transaction limits between directors, etc., and the company  | Approved as proposed |
|                 |               | Approval of changes to the executive compensation system   | Approved as proposed |
|                 |               | Report on 2024 Management Plans  | Reported             |

#### Convening and organizing Board Meetings

Basically, the BoD of HD Hyundai Energy Solutions meets at least once a quarter and can meet as needed in case of urgent issues to be discussed. According to the Articles of Incorporation, a notification of convening a BoD meeting members of the Board will be sent in advance to ensure an effective operation of the Board meetings. Unless otherwise specified in other laws or the Articles of Incorporation, the BoD's decision is made by a majority vote of the directors present, and the decisions made in the BoD meetings are documented in the Board meeting minutes for a record.

#### Education for BoD

To ensure directors' independent and effective performance on the Board and enhance their expertise, HD Hyundai Energy Solutions organizes a meeting or education program once a year exclusively for outside directors in tune with the BoD meeting schedule.

In 2023, we provided education on the themes of improvements in the Act on External Audit of Stock Companies ("the External Audit Act"), ESG disclosures, as well as domestic and global economic status and outlooks, participated by all outside directors.

| Date          | Lecturer                     | Attending Outside Directors                   | Main Subjects  |
|---------------|------------------------------|---|--|
| Sep. 22, 2023 | Samil PricewaterhouseCoopers | OH JEONG KU<br>OH DONG SEOK<br>KIM SEONG MOON | <ul style="list-style-type: none"> <li>Improvements in the External Audit Act and ESG-related disclosure</li> <li>Domestic and global economic conditions and outlook, Industry-specific mid- and long-term growth direction under global uncertainties</li> </ul> |

#### Support for Outside Directors

HD Hyundai Energy Solutions is committed to enhancing the independence and expertise of outside directors by revising regulations regarding support for meetings and education for outside directors. For example, we added new provisions on support for outside directors to the Board of Directors Regulations, allowing for organizing a meeting or education before the Board meetings, exclusively for outside directors. Moreover, upon request, outside directors can seek advice from external experts at the company's expense when necessary.

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### Committees under the Board

#### Audit Committee

HD Hyundai Energy Solutions has established and operated an Audit Committee under the BoD, adhering to stringent requirements stipulated in the Commercial Act. The Audit fully consists of independent outside directors appointed by the Outside Director Recommendation Committee who have no interests with major shareholders and no transactions with the company within the past three years. To ensure the expertise of the Audit Committee, the Chairperson is appointed from those who hold the Certified Professional Accountant (CPA) qualification.

#### Roles of Audit Committee

The Audit Committee of HD Hyundai Energy Solutions consists of outside directors with diverse expertise from different fields, including accounting, finance, law, business administration, and risk management. Such diversity allows the Audit Committee to conduct an auditing of accounts, and an oversight of directors' performance, the financial soundness of the company, and the accuracy of financial reports. Furthermore, we have installed an internal support department to ensure that the Audit Committee functions effectively.

#### Supporting Organization for Audit Committee

As the functions of the Audit Committee have recently been strengthened, the roles of the Chairperson of the Audit Committee and risks have also increased. In this context, HD Hyundai Energy Solutions revised its regulations through a BoD resolution in April 2024. The revisions include the establishment of a support department to assist the efficient operation of the Audit Committee and the authority to appoint and dismiss a department head to ensure its independence. After reviewing the scope of roles and responsibilities required to install this new department, we will establish the department and appoint a department head with the consent of the Audit Committee.

#### Approval of Non-audit Service

To ensure the independence of the external auditor, HD Hyundai Energy Solutions reviews detailed descriptions of non-audit services through prior reports before signing contracts with external auditors. The information on the non-audit service contract with the external audit is transparently disclosed in the Business Report. In addition, important matters identified during non-audit services are disclosed through the Audit Committee Report or regular disclosures in a transparent manner.

#### Audit Committee Composition

| Category          | Name           | Career   | Specialty               |
|-------------------|----------------|--|-------------------------|
| Outside Directors | OH JEONG KU    | <ul style="list-style-type: none"> <li>· Bachelor of Business Administration, Seoul National University</li> <li>· Master of Business Administration, Yonsei University</li> <li>· CPA</li> <li>· Former) Executive Director, Samil PwC (2001~2004)</li> <li>· Former) Outside Director, ILSUNG IS (2007~2010)</li> <li>· Former) Auditor, Ezwelfare Co., Ltd (2014~2020)</li> <li>· Former) Advisor, HYUNDAI Accounting Corporation (2014~2021)</li> </ul>  | Accounting              |
|                   | YEO HWAN SEOP  | <ul style="list-style-type: none"> <li>· Bachelor of Laws, Yonsei University</li> <li>· Former) Chief Prosecutor, Gwangju District Prosecutor's Office (2020~2021)</li> <li>· Former) Chief Prosecutor, Daejeon High Prosecutor's Office (2021~2022)</li> <li>· Former) Director, Institute of Justice (2022)</li> <li>· Current) Outside Director, DS Dansuk (2023~present)</li> <li>· Current) Lawyer, YEO HWANSEOP Legal Office (2022~present)</li> </ul>   | Laws                    |
|                   | KIM SEONG MOON | <ul style="list-style-type: none"> <li>· Bachelor of Mechanical Engineering, Yonsei University</li> <li>· Master and PhD of Industrial and Systems Engineering, University of Michigan, U.S.</li> <li>· Former) Outside Director, SeAH Holdings (2016~2022)</li> <li>· Current) Vice President, Korean Operations Research and Management Science Society (KORMS) (2021~present)</li> <li>· Current) Non-executive Director, IRONGREY (2022~present)</li> <li>· Current) Dean, Yonsei School of Business (2023~present)</li> <li>· Current) Professor, Department of Management, Yonsei University (2005~present)</li> </ul> | Business administration |

#### Non-audit Services executed in 2023

(Unit: KRW mil.)

| Service Year               | Contract Date | Service Description   | Service Period       | Fee |
|----------------------------|---------------|---|----------------------|-----|
| 8 <sup>th</sup> Batch 2023 | -             | -   | -                    | -   |
| 7 <sup>th</sup> Batch 2022 | May 2022      | Review and audit of financial information for a specific period | May 2022 ~ Mar. 2023 | 70  |
| 6 <sup>th</sup> Batch 2021 | -             | -   | -                    | -   |

## Governance

### Committees under the Board

#### Composition of Outside Director Recommendation Committee

In accordance with domestic laws and the internal Articles of Incorporation, HD Hyundai Energy Solutions has established and operated an Outside Director Recommendation Committee to ensure fair nomination and appointment processes when appointing outside directors. As stipulated in the Commercial Act, more than half (three) of the four Committee members are outside directors. We also promote a fair and transparent operation of the Audit Committee by appointing the Chairperson of the Committee from outside directors.

#### Roles of Outside Director Recommendation Committee

The Outside Director Recommendation Committee of HD Hyundai Energy Solutions convenes before the general shareholders meeting to nominate candidates for outside directors. The Committee assesses the capacity and expertise of candidates and closely examines whether the candidates align with the interests and direction of the shareholders and whether there are any risks of undermining corporate values.

#### Composition of Outside Director Recommendation Committee

| Composition                  | Name                        | Objectives and Authority  |
|------------------------------|-----------------------------|---|
| Inside Directors (1 person)  | PARK JONG HWAN              | Performing a function to recommend candidates for outside directors to be appointed by general meetings of shareholders |
|                              | YEO HWAN SEOP (Chairperson) |   |
| Outside Directors (3 people) | OH JEONG KU                 |   |
|                              | KIM SEONG MOON              |   |

#### Outside Director Recommendation Committee Activity for 2024

| No. of Meeting  | Date          | Agenda Item  | Decision             |
|-----------------|---------------|--|----------------------|
| 1 <sup>st</sup> | Feb. 20, 2024 | Approval of recommended candidates for outside directors | Approved as proposed |

#### Composition of ESG Committee

HD Hyundai Energy Solutions established the ESG Committee in 2021 to strengthen its ESG management. The ESG Committee consists of one inside director and three outside directors, each of whom possesses expertise in law, finance and accounting, and business administration. The ESG Committee discusses future directions that HD Hyundai Energy Solutions should take to achieve sustainable management.

#### Roles of ESG Committee

The ESG Committee, as the control tower for sustainable management of HD Hyundai Energy Solutions, discusses strategic directions for ESG management and makes decisions necessary for planning and implementing these strategies. In addition, the ESG Committee exchanges ideas on the issues of environment, safety and health, ethics and compliance, supply chain, and information security. In 2023, the Committee continued to carry out activities to enhance the sustainability of the company by establishing the climate change response strategy.

#### Composition of ESG Committee

| Composition                  | Name                         | Objectives and Authority  |
|------------------------------|------------------------------|---|
| Inside Directors (1 person)  | PARK JONG HWAN               | Deciding on the matters related to the ESG strategic direction, plans, and implementation |
|                              | YEO HWAN SEOP                |   |
| Outside Directors (3 people) | OH JEONG KU                  |   |
|                              | KIM SEONG MOON (Chairperson) |   |

#### ESG Committee Activities for 2023

| No. of Meeting  | Date          | Agenda Item   | Decision             |
|-----------------|---------------|---|----------------------|
| 1 <sup>st</sup> | Oct. 24, 2023 | Approval of climate change response strategies            | Approved as proposed |
| 2 <sup>nd</sup> | Dec. 12, 2023 | Report on 2023 ESG Evaluation Results and 2024 Work Plans | Reported             |

#### Compensation Committee

HD Hyundai Energy Solutions established a Compensation Committee in April 2024 to ensure fairness and transparency in determining director compensation packages and incentive plans. The Compensation Committee is responsible for reviewing and approving the compensation limits for directors to be presented at the general meeting of shareholders, as well as the criteria for executive compensation. The Compensation Committee consists of three outside directors (OH JEONG KU, KIM SEONG MOON, and YEO HWAN SEOP) to pursue an objective and independent operation.

#### Compensation Calculation System

Performance incentives for management are divided into management bonuses and long-term incentives. The management bonus is calculated based on the current year's quantitative indicators such as sales, orders, and operating profits, as well as the qualitative indicators to attain management targets such as leadership and expertise, being paid at the beginning of the following year. The long-term incentive was introduced in late 2023 to prevent decision-making from focusing only on short-term performance and maximize long-term corporate value. This incentive is calculated comprehensively considering indicators such as organizational evaluation and net profit over a grace period (longer than three years), and paid after the grace period ends. As for outside directors and audit committee members, fixed salaries are paid without performance incentives to ensure their independence.

#### Composition of Compensation Committee

| Composition                  | Name           | Objectives and Authority  |
|------------------------------|----------------|---|
| Outside Directors (3 people) | OH JEONG KU    | Deciding on the compensation limit for directors and criteria for executives compensation |
|                              | KIM SEONG MOON |   |
|                              | YEO HWAN SEOP  |   |

#### Remuneration

| Category  | Unit      | 2021    | 2022    | 2023    |
|---|-----------|---------|---------|---------|
| Total Remuneration                                | KRW 1,000 | 518,620 | 788,438 | 761,666 |
| Average Remuneration per Person                   | KRW 1,000 | 103,724 | 157,688 | 152,333 |
| Remuneration Gaps between CEO and Other employees | Times     | 4.9     | 8.0     | 6.8     |

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## Governance

### Shareholders

#### Shareholders and Dividend Status

With prioritizing enhanced shareholder values, HD Hyundai Energy Solutions has actively reviewed shareholder-friendly policies. We decide the dividend within the scope of profit available for the dividend, comprehensively considering profit scale, an investment plan for future growth, and financial structure. Furthermore, we have developed a dividend policy with over 30% payout ratio (based on net income in a separate profit and loss (P&L) statement). Such dividend policy was established in comprehensive consideration of investment, cash flow, financial structure, and dividend stability to expand shareholder returns, and may be adjusted depending on the business conditions and economic outlook.

#### Convocation and Notice of General Meeting of Shareholders

HD Hyundai Energy Solutions holds a regular general meeting of shareholders within three months of the end of each fiscal year and may convene extraordinary general meetings as needed. The notice of the regular general meeting is sent to shareholders in writing or electronically at least two weeks before the meeting date, containing information on the time, location, and purpose of the meeting. In addition, for shareholders owning 1/100 or less of the total issued shares with voting rights, the notice is published at least twice in each of the Korea Economic Daily and the Mail Business Newspaper or posted on the electronic disclosure systems to encourage shareholders to exercise their legitimate rights properly.

#### Decision of General Meeting of Shareholders and Exercise of Voting Rights

Unless otherwise provided by other laws, general meetings of shareholders at HD Hyundai Energy Solutions adopt resolutions by a majority of the voting rights of shareholders present and at least one-fourth of the total number of issued shares. Shareholders are entitled to one vote per share owned, according to the Commercial Act and the Articles of Incorporation of HD Hyundai Energy Solutions. If necessary, shareholders may appoint a proxy to exercise their voting rights. In such cases, the proxy should submit written proof of the proxy authority to the company before the start of the meeting.

#### The 8th General Meeting of Shareholders (Mar. 2024)

| Category               | Agenda Items   | Decision             |
|------------------------|--|----------------------|
| 1 <sup>st</sup> Agenda | Approval of the 8th Financial Statement              | Approved as proposed |
| 2 <sup>nd</sup> Agenda | Appointment of Inside Director (KANG SEOK JOO)       | Approved as proposed |
|                        | Appointment of Outside Director (YEO HWAN SEOP)      | Approved as proposed |
| 3 <sup>rd</sup> Agenda | Appointment of Audit Committee Member YEO HWAN SEOP) | Approved as proposed |
| 4 <sup>th</sup> Agenda | Approval of Compensation Limit for Directors         | Approved as proposed |

#### Status of Issued Stocks for HD Hyundai Energy Solutions

(As of Dec. 31, 2023)

| Category      | Authorized Shares | Issued Shares     | Issuance Ratio |
|---------------|-------------------|-------------------|----------------|
| Common Stock* | 30,000,000 shares | 11,200,000 shares | 37.3%          |

\*HD Hyundai Energy Solutions does not issue any preferred convertible shares, including dividend priority shares

#### Major Shareholders of HD Hyundai Energy Solutions

(As of Dec. 31, 2023)

| Category  | No. of Shares owned | Percentage Ownership |
|---|---------------------|----------------------|
| HD Korea Shipbuilding & Offshore Engineering (HDKSOE) | 6,000,000 shares    | 53.57%               |

#### Enhancing Communication with Shareholders

HD Hyundai Energy Solutions transparently discloses information on its business operations through various channels such as corporate briefings and public disclosure systems. After the quarterly performance reports are disclosed in Feb., Apr., Jul., and Oct. annually, we make such results available on our website to provide easier and more convenient access to the shareholders. In addition, we operate a booking system for meetings with the IR team, enhancing the convenience of shareholders. Furthermore, the information on HD Hyundai Energy Solutions is transparently disclosed not only on our website but also on public disclosure systems such as the Data Analysis, Retrieval and Transfer System (DART) and the Korea Exchange's electronic disclosure system (KIND).

#### Protection of Shareholder Rights

HD Hyundai Energy Solutions ensures transparency in transactions with related parties and self-dealing transactions by requiring BoD's approval for transactions involving major shareholders and stakeholders. We define transactions involving amounts exceeding KRW 10 billion or 5% of the company's capital (or total equity) as large-scale transactions. Such transactions should be disclosed publicly after receiving prior Board's approval when we attempt to make transactions with related parties. Furthermore, when engaging in self-dealing transactions with directors or major shareholders, the company should inform the BoD of such transactions to obtain approval in advance. In this case, the BoD's approval for these transactions requires a resolution by at least two-thirds of the directors.



# Ethics and Compliance

## Ethics and Compliance Governance

### Compliance Management Governance

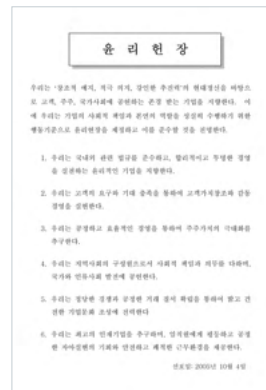
HD Hyundai Energy Solutions has built a compliance management governance system to establish an ethical corporate culture and fulfill its responsibilities toward the nation and society as a corporate citizen. We conduct relevant activities based on the compliance management plans and implementation directions set by the BoD and the CEO.

### Ethics Charter

HD Hyundai Energy Solutions has implemented ethical management by applying the HD Hyundai Group's Ethics Charter. We have complied with the Ethics Charter that encapsulates the ethics-based management philosophy of the Group since its announcement in 2005. Then, the Group revised the Ethics Charter in Dec. 2023 to reflect the core values of HD Hyundai Group.

### Compliance Officer and Compliance Control Standards

HD Hyundai Energy Solutions appoints a Compliance Officer to prevent and manage legal risks that may arise from the company's business operations. The Compliance Officer is responsible for monitoring internal compliance practices, including compliance education. The Compliance Officer also performs compliance control activities such as a Fair Trade Self-Compliance Program to make sure that the company's operations are conducted within legal boundaries.



HD Hyundai Ethics Charter

### Compliance Officer

| Name        | Date of Appointment           | Major Career   |
|-------------|-------------------------------|--|
| KIM YUN HWA | Aug. 8, 2022<br>(3 year term) | Former) HD Hyundai Electric (2020~2022)<br>Current) HD Hyundai Energy Solutions (2022 ~ present) |

### Compliance Officer Activities

| Compliance Control Activities |  |
|-------------------------------|--|
| Date                          | Descriptions   |
| Mar.2023, Jun.2023            | Compliance training for each department<br>- Monopoly Regulation and Fair Trade Act, Fair Transactions in Subcontracting Act, and major advisory cases                 |
| Jul.2023                      | Inspection and evaluation of 2023 H2 compliance  |
| Sep.2023                      | Education on the Act on the Promotion of Mutually Beneficial Cooperation between Large Enterprises and Small and Medium Enterprises (delivery price indexation system) |
| Nov.2023                      | Self-assessment for employees on ethical management compliance   |
| Ongoing                       | Provide compliance officers with guidance on position roles and major check points   |

| Operation of Compliance Program (CP) |  |
|--------------------------------------|--|
| Date                                 | Descriptions   |
| Jan.2023                             | Post the Ethical and Compliance Management Declaration             |
| Feb.2023                             | Report the operational status of the Compliance Program to the BoD |

## Ethics and Compliance

### Internalization of Ethical and Compliance Awareness

#### Fair Trade Compliance Program

To promote transparent and fair management, HD Hyundai Energy Solutions declared its commitment to fair trade compliance in 2022 and disseminated the Fair Trade Compliance Handbook (covering the Monopoly Regulation and Fair Trade Act ("Fair Trade Act"), and the Fair Transactions in Subcontracting Act ("Subcontracting Act")) across the company. In accordance with the Fair Trade Compliance Program, we inspect the implementation and compliance status once a year, reporting the findings to the BoD. Moreover, we provided education on the Fair Trade Act in Mar. and Jun. 2023 to encourage active participation of employees.

#### Compliance Education

HD Hyundai Energy Solutions regularly organizes compliance education for new executives, department heads, team leaders, section leaders, and new hires. These education sessions provide knowledge on the Fair Trade Act and the Subcontracting Act, major advisory cases, and contract risks. We provide tailored education to fit the jobs and positions of each employee.

#### Personnel System and Ethics & Compliance

HD Hyundai Energy Solutions evaluates the capabilities of its employees by incorporating ethics and compliance-related criteria. For team leaders and above, 5% of the MBO (Management by Objectives) evaluation should include ESG and ethical management elements. Moreover, we operate a system where points in personnel evaluation are deducted if any improper practices are discovered in relation to ethics management. The point system used in promotion assessments also reflects ethical management criteria, applying deductions for any disciplinary actions related to corruption.

#### Disciplinary System

HD Hyundai Energy Solutions convenes a Personnel (Disciplinary) Committee for those who committed unethical deeds to impose minor disciplinary actions such as warnings or reprimands to severe disciplinary actions such as salary reduction and dismissal. We are committed to making rigorous judgments and responses to unethical behavior.

#### Operation of Grievance Handling Committee

Employees of HD Hyundai Energy Solutions can rely on the Grievance Handling Committee to respond to unethical behavior in the workplace. The Committee receives reports of sexual harassment, gender discrimination, and bullying within the company. Upon receiving such reports, it listens to the cases of the victims, provides counseling, monitors for secondary harm, and protects the victims. Disciplinary actions are considered against perpetrators while plans are developed to prevent the recurrence of similar incidents. Moreover, the Grievance Handling Committee offers internal grievance counseling services to employees. The Committee handles various grievances, including conflicts and stress caused by work-life imbalance and other issues that hinder a healthy work environment. Grievances can be submitted in writing or verbally (via phone or email), and are promptly and fairly addressed. All consultations are kept confidential in a strict manner.

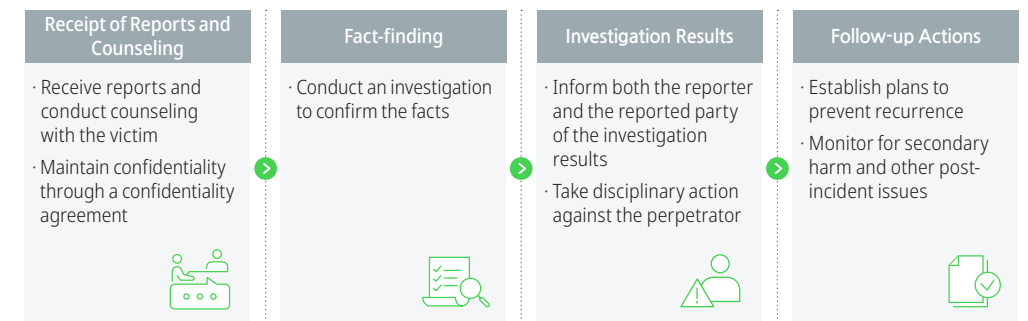
#### Protection of Informants

HD Hyundai Energy Solutions strictly adheres to confidentiality and non-disclosure principles for whistleblowers and their reports through the 'Whistleblower Protection and Reward System.' The identity of informants is not revealed without their consent, and legitimate whistleblowers are protected from any disadvantage or discrimination due to their reporting. Furthermore, if a report helps prevent financial loss or contributes to revenue recovery or cost savings, the informants meeting the reward criteria will be rewarded up to KRW 1 billion.

#### Compliance Education Status

| Indicators   | Unit        | 2021 | 2022 | 2023 |
|--|-------------|------|------|------|
| No. of Compliance Training                                     | Cases       | 4    | 5    | 2    |
| Participants in Compliance Training                            | Persons     | 209  | 261  | 230  |
| No. of Departments Inspecting Subcontracting Transaction Risks | Departments | 24   | 23   | 22   |
| No. of Legal Advice on Fair Trade                              |             | 0    | 21   | 0    |
| No. of Legal Advice on Anti-corruption and Economic Sanctions  | Cases       | 1    | 1    | 0    |
| Other Legal Advice   |             | 69   | 110  | 80   |
| Violations of the Improper Solicitation and Graft Act          |             | 0    | 0    | 0    |

#### Grievance Handling Process



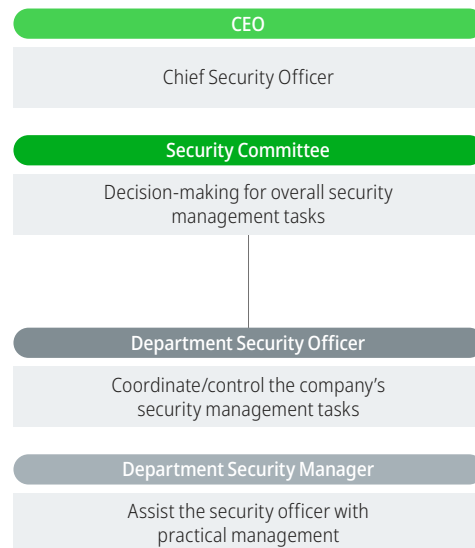
# Information Security

## Information Security System

### Information Security Governance

HD Hyundai Energy Solutions has appointed a Chief Information Security Officer (CISO) to protect internal data from external threats. Utilizing HD Hyundai Group's security system, we manage and monitor the information security system through security control operated 24/7 throughout the year. The CISO comprehensively manages the operational security of the information system and major internal information subject to protection. Furthermore, HD Hyundai Energy Solutions maintains the International Information Security Certification (ISO 27001), ensuring the objective verification of operational efficiency.

### Information Security Management Structure



### Information Security Regulations and Guidelines

HD Hyundai Energy Solutions has established and operated internal information security regulations by developing and revising its information security regulations (e.g., security management regulations, national core technology security regulations, privacy protection regulations, and GRC facility security regulations) in alignment with various domestic and international security laws and regulations. These regulations are periodically reviewed and revised to reflect amendments to relevant laws, the effectiveness of the regulations, the number of security incidents, business efficiency, and responses to technological changes.

### Information Protection Regulations

|                       |   |
|-----------------------|---|
| <b>Regulations</b>    | <ul style="list-style-type: none"> <li>· Security Management Regulations</li> <li>· Privacy Protection Regulations</li> </ul>   |
| <b>Detailed Rules</b> | <ul style="list-style-type: none"> <li>· Physical Security Rules</li> <li>· Personnel Security Rules</li> <li>· Document Security Rules</li> <li>· Information Asset Security Rules</li> <li>· Smart Work Security Rules</li> </ul> |
| <b>Guidelines</b>     | <ul style="list-style-type: none"> <li>· Encryption Security Guidelines</li> <li>· Cloud Security Guidelines</li> <li>· Incident Prevention and Response Guidelines</li> <li>· Security Assessment Guidelines</li> </ul>            |

### Information Security Vulnerability Analysis

HD Hyundai Energy Solutions regularly analyzes security vulnerabilities to identify and address improvement tasks in response to evolving cyber-attacks and attempts at information leakage. In 2023, we conducted a simulation drill to distribute malicious emails to raise employees' awareness of information security. In the simulation drill, we sent high-difficulty administrator-format emails to categorize employees based on their actions: those who did not open the email, those who opened it, those who followed potentially malicious links, and those who executed files. Employees who engaged in risky behavior were provided with guidance on how to respond to malicious emails and received Hi-class education.

### Security Enhancement Activities

| Simulation Drill for Malicious Emails                        |   |
|--|---|
| Date   | Descriptions  |
| Jun. 26, 2023 ~ Jun. 30, 2023                                | Raising employees' awareness about malicious emails   |
| Appointment of CISO CPO                                      |   |
| Date   | Descriptions  |
| Oct. 25, 2023  | Appointing CISO CPO to strengthen information protection responsibilities   |
| Establishing and Revising Information Protection Regulations |   |
| Date   | Descriptions  |
| Oct. 25, 2023  | Establishing and Revising information protection regulations to ensure the effectiveness of security systems, aligned with the HD Hyundai Group's standards and content |

### Conducting Information Security Training

HD Hyundai Energy Solutions utilizes the security portal system within the HD Hyundai Group to conduct security training every year. Additionally, we have designated a "Security Day" to provide regular education and training for information security. Furthermore, we have continued to make investments in information protection, and in 2023, about 7.0% of the total IT sector investments were executed for information security initiatives.

### Security Training Status

| Category                 | Unit    | 2021 | 2022 | 2023 |
|--------------------------|---------|------|------|------|
| Total Training Hours     | Hours   | 191  | 193  | 198  |
| No. of Participants      | Persons | 191  | 193  | 198  |
| Training Hour per Person | Hours   | 1    | 1    | 1    |

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## Information Security

### Privacy Protection

#### Operating Privacy Policies

HD Hyundai Energy Solutions adheres to the principle of collecting the minimum amount of personal information required to provide effective customer consultation and services while protecting the rights and interests of information subjects. The collected personal information is not used for purposes other than those predefined, and if the usage purpose changes, prior consent should be sought to make the information subjects well-informed about the changes. Once the purpose of personal information collection and usage is achieved, it is promptly destroyed to prevent any breach incidents. Personal information such as names, emails, mobile phone numbers, and addresses are destroyed after a retention period of two years in accordance with internal management regulations.

#### Privacy Policies

- 1 Refrain from collecting personal information indiscriminately
- 2 Distinguish between optional information and information necessary to provide services when collecting personal information
- 3 Prohibit in principle the processing of unique identifying information such as resident registration numbers and sensitive information such as religion and health data.
- 4 Notify customers when sharing personal information for promotional and sales purposes and manage it thoroughly
- 5 Store personal information using safe methods such as DB supplementary programs and encryption software
- 6 Understand and comply with the information retention periods stipulated by laws and regulations if that information needs to be stored
- 7 Destroy personal information files in an unrecognizable manner after using them for intended purposes
- 8 Install a signboard with CCTVs
- 9 Make sure to prepare guidelines on personal information protection
- 10 Prepare for personal information leakage notifications, mediation for collective disputes, and class action lawsuits

#### Physical Measures for Privacy Protection

HD Hyundai Energy Solutions has taken various physical measures to protect personal information. On top of establishing a personal information processing policy, we strive to internalize privacy protection awareness by sharing newsletters and relevant cases with all employees. Furthermore, when initiating or changing personal information processing services or systems, we review potential breaches against privacy information in advance to manage related risks effectively.

#### Technical Measures for Personal Information Protection

HD Hyundai Energy Solutions also employs technical measures together with physical ones to protect personal information. Through the encryption of customer information, we prevent security threats when transmitting customer information. We also keep our security system updated and monitored periodically.

#### Information Leakage and Fines

| Category                            | Unit      | 2021 | 2022 | 2023 |
|-------------------------------------|-----------|------|------|------|
| Total Number of Information Leakage | Cases     | 0    | 0    | 0    |
| Customer Information Leakage        | Cases     | 0    | 0    | 0    |
| Fines for Information Leakage       | KRW 1,000 | 0    | 0    | 0    |

# Risk Management

## Risk Management System

### Company-wide Risk Management

HD Hyundai Energy Solutions conducts company-wide risk management activities led by the BoD to ensure stable corporate operations by managing both financial and non-financial risks. The ESG Committee under the BoD discusses major ESG policies and issues and supports the execution of practical tasks. ESG risks encompassing areas such as environment, safety and health, ethical compliance, supply chain, and information security, are managed through this ESG framework. We analyze not only risk factors but also opportunity factors to promote a sustainable management system that preemptively responds to the identified factors. Risk management activities are reported to the BoD through the Chief ESG Officer (CFO). The Chief Safety Officer (CSO) appoints the production manager at the Eumseong plant to thoroughly manage potential risks in the production process.

### Department-based Risk Management

HD Hyundai Energy Solutions manages risks by categorizing them for each business department. In other words, financial risks are handled by the Financial Analysis Team, while production risks and sales risks are addressed by the Production Planning Team and the Sales Planning Team respectively. These teams identify potential risks, review them periodically, and discuss management strategies for these risks.

## Financial and Non-Financial Risk Management

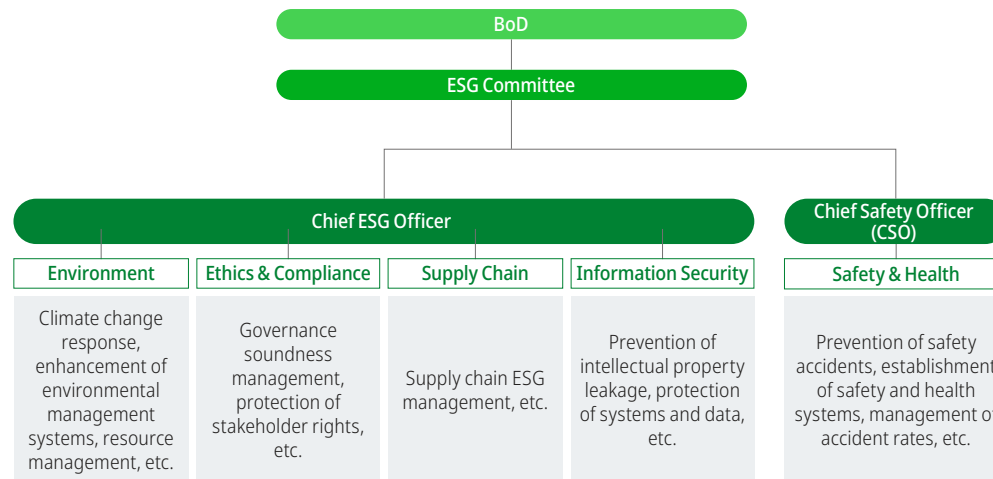
### Financial Risk Sensitivity Analysis

HD Hyundai Energy Solutions manages financial risks including market risk, liquidity risk, and credit risk. To address market risk, which can affect the fair value of financial instruments or future cash flows due to market price fluctuations, the company optimizes returns while keeping market risk exposure controlled within acceptable limits.

### Non-Financial Risk Sensitivity Analysis

HD Hyundai Energy Solutions makes decisions on matters regarding ESG strategic directions, plans, and implementations through its ESG Committee under the BoD and supports the execution of practical tasks. In this way, we identify and manage non-financial ESG risks such as safety and health, ethics and compliance, supply chain, and information security.

### Integrated Risk Management System



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# Risk Management

## Financial and Non-Financial Risk Management

### Emerging Risks

HD Hyundai Energy Solutions identifies various types of emerging risks by classifying them and these identified emerging risks are then discussed through the ESG Committee. For major issues, we seek preventive response measures through decisions made by the ESG Committee and the BoD.

### Opportunity Factors

Since 2020, HD Hyundai Energy Solutions has been leading the market with eco-friendly carbon-certified grade 1 modules, and customer demand has steadily grown accordingly. Moreover, with the increasing importance of ESG management due to mandatory ESG disclosures and initiatives such as carbon neutrality and RE100, the solar power industry, as a renewable energy source, is expected to continue its growth steadily. HD Hyundai Energy Solutions will spare no efforts and investments in developing eco-friendly technologies by leveraging excellent R&D capabilities to seize such opportunity factors.

### Indicators and Goals

HD Hyundai Energy Solutions has established an ESG Committee under the BoD and within this framework, the Chief ESG Officer and our employees have monitored emerging risks including both financial and non-financial risks. We formulate timely strategies and policies while conducting mitigation activities in the mid- and long-term by proactively responding to internal and external environmental changes. HD Hyundai Energy Solutions will set mid- to long-term goals and pursue sustainable management to turn crises into opportunities.

Emerging risks identified by HD Hyundai Energy Solutions and their response measures

| Global Economic Downturn   | Rise in Raw Material Prices   | Transition to a Green Economy  | Human Rights Management   | Supply Chain Management Risks  |
|--|---|--|---|--|
| Following COVID-19, the global economy has experienced a rapid downturn due to unprecedented liquidity provided, global tightening policies due to inflation, and Russia-Ukraine conflicts | The protracted Russia-Ukraine conflict has led to a global increase in raw material prices, threatening corporate profitability | Environmental activities across the entire value chain will be needed to achieve human survival and sustainable management, thereby making profits | There is increasing regulatory pressure on both global supply chain human rights due diligence and internal corporate human rights practices, emphasizing the need for human rights responsibility, risk assessment, and management | As global uncertainty has intensified due to the EU Supply Chain Due Diligence Law and strengthened global supply chain management, there is a growing need to enhance ESG management within supply chains |



| HD Hyundai Energy Solutions  |  |  |   |  |
|--|--|--|---|--|
| - Strengthening product competitiveness through new facility investment and securing competitiveness through continued growth and enhanced productivity      | - Increasing production flexibility and securing additional supply capacity by partnering with overseas top-tier PV cell/ module producers | - Establishing a roadmap to achieve mid- and long-term strategies and goals for combating climate change and reaching carbon neutrality                                | - Holding a human rights management committee and signing a human rights management declaration, reviewing and deciding on human rights management practice regulations, human rights impact assessment, and identifying/evaluating human rights impacts on domestic business sites and supply chains | - Complying with HD Hyundai Group's supply chain management policies, establishing ESG management assessment and management system, Planning continuous inspection and improvements of global supply chain issues/ risks |
| - Strengthening financial risk management, including management procedures and capital management, to respond to risks such as credit, liquidity, and market |  | - Advancing management by engaging in environmental initiatives such as CDP (Carbon Disclosure Project) and TCFD (Task Force on Climate-related Financial Disclosures) |   |  |

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## ESG Data

### Financial Data

#### Summary of Consolidated Financial Statements

(Unit: KRW mil.)

| Title of Account                       | 2021           | 2022           | 2023           |
|--|----------------|----------------|----------------|
| <b>Current assets</b>                  | <b>445,279</b> | <b>490,182</b> | <b>361,110</b> |
| Cash and cash equivalents              | 128,291        | 68,761         | 104,930        |
| Short-term financial assets            | 5,000          | -              | -              |
| Accounts and other receivables         | 117,525        | 140,423        | 84,490         |
| Inventories                            | 186,226        | 273,182        | 168,208        |
| Other current assets                   | 8,237          | 7,816          | 3,482          |
| <b>Non-current assets</b>              | <b>160,280</b> | <b>162,644</b> | <b>140,947</b> |
| Long-term financial assets             | 2,380          | 2,294          | 2,266          |
| Tangible assets                        | 114,247        | 119,450        | 94,813         |
| Intangible assets                      | 7,880          | 8,122          | 10,175         |
| Other non-current assets               | 35,773         | 32,778         | 33,693         |
| <b>Total assets</b>                    | <b>605,559</b> | <b>652,826</b> | <b>502,057</b> |
| Current liabilities                    | 255,777        | 237,449        | 105,253        |
| Non-current liabilities                | 29,462         | 33,844         | 25,247         |
| <b>Total liabilities</b>               | <b>285,239</b> | <b>271,293</b> | <b>130,500</b> |
| Capital stock                          | 56,000         | 56,000         | 56,000         |
| Capital surplus                        | 105,855        | 105,855        | 105,855        |
| Accumulated other comprehensive income | 4,591          | 4,686          | 4,728          |
| Retained earnings                      | 153,874        | 214,992        | 204,974        |
| Non-controlling interests              | 0              | 0              | 0              |
| <b>Total equity</b>                    | <b>320,320</b> | <b>381,533</b> | <b>371,557</b> |

#### Summary of Consolidated P&L (Profit & Loss) Statement

(Unit: KRW mil.)

| Title of Account                 | 2021    | 2022    | 2023    |
|----------------------------------|---------|---------|---------|
| Sales                            | 593,164 | 984,812 | 546,120 |
| Operating profit                 | 9,495   | 90,166  | 17,543  |
| Net income (loss) for the year   | (6,656) | 60,610  | (2,864) |
| Earnings per share (loss) (KRW)  | (594)   | 5,412   | (256)   |
| No. of consolidated subsidiaries | 1       | 1       | 1       |



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### Environmental Data

#### GHG Emissions

| Category                     | Unit                         | 2021          | 2022          | 2023          |
|------------------------------|------------------------------|---------------|---------------|---------------|
| <b>Total GHG emissions</b>   | <b>tCO<sub>2</sub>eq</b>     | <b>27,366</b> | <b>38,240</b> | <b>41,779</b> |
| Direct emissions (Scope 1)   | tCO <sub>2</sub> eq          | 2,143         | 3,565         | 6,162         |
| Indirect emissions (Scope 2) | tCO <sub>2</sub> eq          | 25,223        | 34,675        | 35,617        |
| GHG Intensity                | tCO <sub>2</sub> eq/KRW bil. | 46.1          | 38.8          | 76.5          |

#### Energy

| Category                               | Unit        | 2021       | 2022       | 2023       |
|--|-------------|------------|------------|------------|
| <b>Total energy consumption</b>        | <b>TJ</b>   | <b>539</b> | <b>753</b> | <b>780</b> |
| Direct Energy (Scope 1)                | TJ          | 12         | 29         | 37         |
| Indirect Energy (Scope 2)              | TJ          | 527        | 724        | 744        |
| Intensity                              | TJ/KRW bil. | 0.9        | 0.8        | 1.4        |
| <b>Non-renewable energy generation</b> |             |            |            |            |
| Solar power                            | MWh         | 4,324      | 4,786      | 4,712      |
| <b>Energy sales</b>                    |             |            |            |            |
| Electricity                            | MWh         | 4,324      | 4,786      | 4,712      |

#### Water

| Category                   | Unit          | 2021    | 2022    | 2023    |
|----------------------------|---------------|---------|---------|---------|
| Total water consumption    | ton           | 382,650 | 417,887 | 516,561 |
| Water Use Intensity (WUI)  | ton/ KRW bil. | 645     | 424     | 946     |
| Total wastewater discharge | ton           | 304,124 | 356,076 | 360,562 |

#### Air pollutants

| Category | Unit      | 2021          | 2022   | 2023   |        |
|----------|-----------|---------------|--------|--------|--------|
| NOx      | Emissions | ton           | 1.7    | 4.2    | 1.2    |
|          | Intensity | ton/ KRW bil. | 0.0029 | 0.0043 | 0.0021 |
| SOx      | Emissions | ton           | 0.8    | 0.0    | 0.1    |
|          | Intensity | ton/ KRW bil. | 0.0013 | 0.0000 | 0.0001 |
| Dust     | Emissions | ton           | 3.1    | 0.7    | 2.1    |
|          | Intensity | ton/ KRW bil. | 0.0052 | 0.0007 | 0.0038 |

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#### Water pollutants

| Category                        |           | Unit          | 2021  | 2022  | 2023  |
|---------------------------------|-----------|---------------|-------|-------|-------|
| COD                             | Emissions | kg            | 730   | 1,228 | -     |
|                                 | Intensity | kg/ KRW bil.  | 1.2   | 1.2   | -     |
| Total Organic Carbon (TOC)*     | Emissions | ton           |       |       | 505   |
|                                 | Intensity | ton/ KRW bil. |       |       | 0.9   |
| Biochemical Oxygen Demand (BOD) | Emissions | ton           | 243   | 338   | 82    |
|                                 | Intensity | ton/ KRW bil. | 0.4   | 0.3   | 0.1   |
| Suspended Solids (SS)           | Emissions | ton           | 487   | 506   | 367   |
|                                 | Intensity | ton/ KRW bil. | 0.8   | 0.5   | 0.7   |
| Total Nitrogen (T-N)            | Emissions | ton           | 5,170 | 2,845 | 1,895 |
|                                 | Intensity | ton/ KRW bil. | 8.7   | 2.9   | 3.5   |

\*With the changes in the organic matter measurement indicator, the data has been updated and managed from COD to TOC since 2023

#### Waste

| Category                    | Unit       | 2021            | 2022            | 2023            |
|-----------------------------|------------|-----------------|-----------------|-----------------|
| <b>Total waste disposed</b> | <b>ton</b> | <b>4,762.60</b> | <b>7,601.30</b> | <b>7,281.39</b> |
| General waste               | ton        | 3,599.7         | 5,169.4         | 4,978.7         |
| Designated waste            | ton        | 1,162.90        | 2,431.90        | 2,302.69        |
| <b>Waste treatment</b>      |            |                 |                 |                 |
| Landfilled                  | ton        | 0               | 0               | 0               |
| Incinerated                 | ton        | 7.0             | 17.0            | 20.5            |
| Recycled                    | ton        | 4,762.6         | 7,601.3         | 7,260.9         |
| Recycle rate                | %          | 99.9            | 99.8            | 99.7            |

#### Environmental Investments

| Category                  | Unit         | 2021 | 2022 | 2023 |
|---------------------------|--------------|------|------|------|
| Environmental investments | KRW 100 mil. | 2.8  | 2.6  | 2.7  |

#### Green Procurement

| Category                      | Unit         | 2021  | 2022  | 2023  |
|-------------------------------|--------------|-------|-------|-------|
| Green Procurement             | KRW 100 mil. | 301   | 354   | 138   |
| Total procurement             | KRW 100 mil. | 5,400 | 8,147 | 3,009 |
| Green procurement performance | %            | 5.57  | 4.35  | 4.59  |

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### Social Data

#### Workforce

| Category                  | Unit    | 2021 | 2022 | 2023 |
|---------------------------|---------|------|------|------|
| Total number of employees | Persons | 213  | 248  | 235  |
| Male                      | Persons | 173  | 204  | 193  |
| Female                    | Persons | 40   | 44   | 42   |
| Under 30                  | Persons | 46   | 56   | 45   |
| 30 ~ 49                   | Persons | 134  | 162  | 147  |
| 50 or above               | Persons | 33   | 30   | 43   |
| Regular                   | Persons | 164  | 190  | 201  |
| Male                      | Persons | 145  | 166  | 170  |
| Female                    | Persons | 19   | 24   | 31   |
| Non-regular               | Persons | 49   | 58   | 34   |
| Male                      | Persons | 28   | 38   | 23   |
| Female                    | Persons | 21   | 20   | 11   |

\*The age classification of employees is calculated based on the international age system, according to the amendment to the General Act of Public Administration and the Civil Act

#### Diversity in Workforce

| Category  | Unit        | 2021       | 2022       | 2023      |
|---|-------------|------------|------------|-----------|
| Women in total employees  | Persons (%) | 40 (19%)   | 44 (18%)   | 42 (18%)  |
| Women in new hires  | Persons (%) | 27 (32.5%) | 19 (23.5%) | 7 (18.4%) |
| Women in managerial positions                                   | Persons (%) | 0 (0%)     | 0 (0%)     | 1 (2.9%)  |
| Women in executives   | Persons (%) | 0 (0%)     | 0 (0%)     | 0 (0%)    |
| Women in managerial positions of revenue-generating departments | Persons (%) | 30 (30%)   | 16 (31%)   | 11 (33%)  |

\*Data was revised due to confirmation of missing historical data and changes in data management standards

#### Recruitment and Retention

| Category                     | Unit    | 2021 | 2022 | 2023 |
|------------------------------|---------|------|------|------|
| Total number of new recruits | Persons | 83   | 81   | 38   |
| Entry-level employee         | Persons | 62   | 57   | 27   |
| Experienced employee         | Persons | 17   | 24   | 7    |
| Local recruits               | Persons | 4    | 0    | 4    |
| Total turnover               | Persons | 69   | 44   | 52   |
| Turnover rate                | %       | 32.4 | 17.7 | 22.1 |
| Voluntary turnover rate      | %       | 20.7 | 11.7 | 10.6 |
| Average years of service     | Years   | 8.9  | 7.9  | 9.1  |
| Male                         | Years   | 10.4 | 9.0  | 10.3 |
| Female                       | Years   | 2.4  | 2.6  | 3.6  |

#### Performance Evaluation

| Category   | Unit | 2021 | 2022 | 2023 |
|--|------|------|------|------|
| Ratio of employees subject to MBO performance evaluation | %    | 13.6 | 19.5 | 14.4 |

#### Remuneration

| Category                    | Unit      | 2021   | 2022   | 2023   |
|-----------------------------|-----------|--------|--------|--------|
| Average salary of employees | KRW 1,000 | 68,713 | 75,702 | 74,507 |
| Male                        | KRW 1,000 | 76,569 | 82,292 | 80,423 |
| Female                      | KRW 1,000 | 34,739 | 45,147 | 47,321 |

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## ESG Data

### Social Data

#### Parental Leave

| Category   | Unit    | 2021 | 2022 | 2023 |
|--|---------|------|------|------|
| Male employees who used parental leave   | Persons | 2    | 6    | 3    |
| Female employees who used parental leave   | Persons | 1    | 1    | 0    |
| Male Employees returning to work after parental leave                                      | Persons | 4    | 4    | 4    |
| Female Employees returning to work after parental leave                                    | Persons | 1    | 3    | 0    |
| Rate of Male Employees working for 12 or more months after returning from parental leave   | %       | 100  | 100  | 100  |
| Rate of Female Employees working for 12 or more months after returning from parental leave | %       | 100  | 100  | 100  |

\*Data was revised due to confirmation of missing historical data

#### Education for Employees

| Category  | Unit          | 2021 | 2022 | 2023 |
|---|---------------|------|------|------|
| Sexual harassment prevention education              | Hours/ person | 1    | 1    | 1    |
| Awareness improvement education for disabled people | Hours/ person | 1    | 1    | 1    |

#### Safety and Health Management

| Category                                   | Unit    | 2021    | 2022    | 2023    |
|--|---------|---------|---------|---------|
| Total annual working hours                 | Hours   | 427,704 | 484,120 | 452,504 |
| Fatalities                                 | Persons | 0       | 0       | 0       |
| Lost Time Incident (LTI)                   | Cases   | 0       | 1       | 0       |
| Occupational Illness (OI)                  | Cases   | 0       | 0       | 0       |
| Near-Miss Incident (NM)                    | Cases   | 0       | 0       | 0       |
| Lost Time Injury Frequency Rate (LTIFR)    | %       | 4.7     | 2.1     | 0       |
| Occupational Illness Frequency Rate (OIFR) | %       | 0       | 0       | 0       |
| Near-Miss Frequency Rate (NMFR)            | %       | 0       | 0       | 0       |

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## ESG Data

### Social Data

#### Safety and Health Education

| Category  | Unit                       | 2021          | 2022  | 2023  |       |
|-----------|----------------------------|---------------|-------|-------|-------|
| Employees | Participants               | Persons       | 120   | 147   | 203   |
|           | Education hours            | Hours         | 2,880 | 3,528 | 4,872 |
|           | Education hours per person | Hours/ person | 24    | 24    | 24    |
|           | Participation rate         | %             | 56    | 59    | 95    |

#### Social Contribution

| Category                     | Unit     | 2021    | 2022  | 2023 |
|------------------------------|----------|---------|-------|------|
| Volunteering hours           | Hours    | 104     | 84    | 56   |
| Amount of cash contributions | KRW mil. | 5.0     | 115.2 | 23.6 |
| Amount of in-kind donation 1 | KRW mil. | 1,929.6 | 42.9  | 5.4  |

#### Security Education

| Category  | Unit                       | 2021          | 2022 | 2023 |     |
|---|----------------------------|---------------|------|------|-----|
| Information security and privacy protection education | Education hours per person | Hours/ person | 1    | 1    | 1   |
|   | Total participants         | Persons       | 191  | 193  | 198 |

#### Privacy Protection

| Category   | Unit    | 2021 | 2022 | 2023 |
|--|---------|------|------|------|
| Violations of privacy protection laws and regulations  | Cases   | 0    | 0    | 0    |
| No. of customers (individuals) affected by violations of privacy laws and regulations (leakage, theft, etc.) | Persons | 0    | 0    | 0    |

## ESG Data

### Governance Data

#### Board of Directors

| Category          |   | Unit     | 2021 | 2022 | 2023 |
|-------------------|---|----------|------|------|------|
| Board composition | No. of members                                  | Persons  | 5    | 5    | 5    |
|                   | No. of outside directors                        | Persons  | 3    | 3    | 3    |
|                   | No. of inside directors                         | Persons  | 2    | 2    | 2    |
|                   | No. of other non-executive directors            | Persons  |      |      |      |
| Board operation   | No. of meetings held                            | Sessions | 10   | 7    | 8    |
|                   | No. of agenda decided for approvals/ rejections | Cases    | 21   | 15   | 13   |
|                   | Average attendance rate                         | %        | 88   | 94   | 98   |
| Board diversity   | Female  | Persons  | -    | -    | -    |
|                   | Male  | Persons  | 5    | 5    | 5    |
|                   | Under 30  | Persons  | -    | -    | -    |
|                   | 30~49   | Persons  | 2    | 2    | 2    |
|                   | 50 or above                                     | Persons  | 3    | 3    | 3    |

| Category                                  |                           | Unit     | 2021 | 2022 | 2023 |
|---|---------------------------|----------|------|------|------|
| Outside Director Recommendation Committee | No. of members            | Persons  | 4    | 4    | 4    |
|   | Rate of outside directors | %        | 75   | 75   | 75   |
|   | No. of meetings held      | Sessions |      | 2    |      |
| Audit Committee                           | No. of members            | Persons  | 3    | 3    | 3    |
|   | Rate of outside directors | %        | 100  | 100  | 100  |
|   | No. of meetings held      | Sessions | 3    | 6    | 6    |
| ESG Committee                             | No. of members            | Persons  | 4    | 4    | 4    |
|   | Rate of outside directors | %        | 75   | 75   | 75   |
|   | No. of meetings held      | Sessions | 2    | 2    | 2    |

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### Governance Data

#### Enhancement of Shareholder Rights

| Category  | Unit       | 2021       | 2022       | 2023       |
|---|------------|------------|------------|------------|
| Total No. of issued shares  | Shares     | 11,200,000 | 11,200,000 | 11,200,000 |
| Common shares   | Shares     | 11,200,000 | 11,200,000 | 11,200,000 |
| Non-voting shares   | Shares     | 0          | 0          | 0          |
| Notification date for location and agenda of general meetings of shareholders | Prior days | 32         | 31         | 33         |

#### Anti-corruption and Ethical Management

| Category                                   | Unit   | 2021 | 2022 | 2023 |
|--|--|------|------|------|
| Ethics Education                           | Ethics education hours per employee                                  | 0.3  | 0.4  | 0.7  |
|  | Ratio of employees who completed ethics education                    | 64.8 | 83.9 | 69.4 |
| Compliance Education                       | No. of ethics education  | 4    | 5    | 5    |
|  | Participants in ethics education                                     | 209  | 261  | 163  |
| Ethical management evaluation and measures | No. of legal consultations on anti-corruption and economic sanctions | 1    | 1    | 0    |
|  | Other legal advice   | 69   | 110  | 80   |

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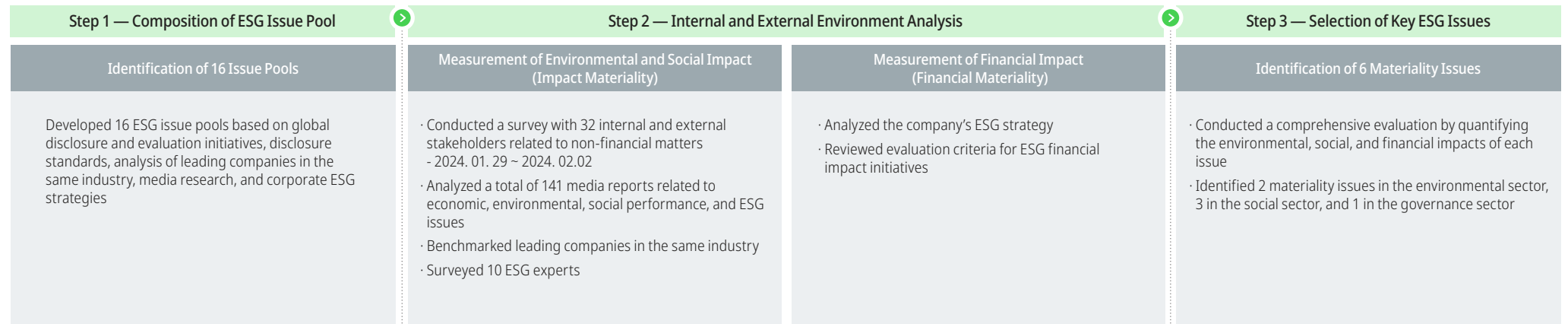
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# Double Materiality Assessment

## Double Materiality Assessment

HD Hyundai Energy Solutions conducts an annual materiality assessment to collect opinions from key domestic and international stakeholders and identify materiality issues to be addressed with significance for sustainability. To identify the social impacts of corporate management activities as well as the issues that affect corporate value and financial aspects from an external perspective, we conduct a double materiality assessment. Based on this, HD Hyundai Energy Solutions has incorporated the interests and demands of stakeholders into this integrated report. As a result of the 2024 materiality assessment, 'sustainable product and technology development,' 'climate change response,' 'promotion of talent management,' 'customer satisfaction enhancement,' 'strengthened labor-management partnership,' and 'enterprise-wide risk management' were identified as materiality issues. The results of the 2024 double materiality assessment were reported to the 1st ESG Committee meeting on April 23, 2024. The report included the materiality assessment results, implications, opportunities and risk factors for each materiality issue, and their management plans. HD Hyundai Energy Solutions plans to actively reflect stakeholder feedback when establishing future ESG strategies.



## HD Hyundai Energy Solutions Materiality Assessment Results

High-level: ● Middle-level: ◐ Low-level: ○

| Rank | Issue  | Environmental/ social impacts | Financial impacts | Probability | Change in ranks |
|------|--|-------------------------------|-------------------|-------------|-----------------|
| 1    | Sustainable Product and Technology Development | ●                             | ●                 | Actual      | -               |
| 2    | Climate change response                        | ●                             | ◐                 | Actual      | Up              |
| 3    | Promotion of talent management                 | ●                             | ●                 | Actual      | Down            |
| 4    | Customer satisfaction enhancement              | ○                             | ●                 | Actual      | Up              |
| 5    | Strengthened labor-management partnership      | ●                             | ◐                 | Actual      | Down            |
| 6    | Enterprise-wide risk management                | ◐                             | ◐                 | Actual      | Up              |
| 7    | Supply chain ESG management                    | ◐                             | ◐                 | Potential   | Up              |
| 8    | Social contribution                            | ●                             | ○                 | Potential   | Down            |



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## Key ESG Issues

| Rank | Issue  | Risks and opportunities   | Strategies  | Major activities  | Plans   |
|------|--|---|---|---|---|
| 1    | Sustainable Product and Technology Development | <ul style="list-style-type: none"> <li>Global GHG reduction targets and tightened regulations on environmental pollutant emissions</li> <li>Carbon neutrality declarations from major investors and stakeholder engagement requests</li> <li>Increased demand for renewable energy and opportunities to expand eco-friendly solar energy production</li> </ul>  | <ul style="list-style-type: none"> <li>Establish an eco-friendly process</li> <li>Develop low-carbon products</li> <li>Build infrastructure for a sustainable future through facility investments</li> </ul>  | <ul style="list-style-type: none"> <li>Achieved green procurement totaling KRW 13.8 billion, 4.59% of total procurement</li> <li>Increased sales of low-carbon, eco-friendly products (KRW 40.2 billion)</li> <li>Developed high-efficiency n-Type and BIPV module technologies</li> <li>Achieved GHG emissions 15% below the allocated amounts (41,779 tCO<sub>2</sub>eq)</li> </ul> | <ul style="list-style-type: none"> <li>Conduct Life Cycle Analysis (LCA) to assess environmental impact</li> <li>Continue to reduce GHG emissions</li> <li>Promote eco-friendly certification for n-Topcon products</li> </ul>  |
| 2    | Climate change response                        | <ul style="list-style-type: none"> <li>Building trust with stakeholders through climate change response activities</li> <li>Damage to production facilities and costs incurred from extreme weather events such as flooding, forest fire, and drought</li> <li>Increased costs of purchasing carbon credits</li> <li>Contributing to achieving NDC targets through GHG emissions reduction</li> </ul> | <ul style="list-style-type: none"> <li>Review mid-and long-term reduction targets for GHGs, hazardous chemicals, water, and waste</li> <li>Strengthen environmental target management systems</li> </ul>  | <ul style="list-style-type: none"> <li>Reduced energy consumption in key product (M10) production by 1.4% in module factories and 1.5% in cell factories compared to 2022, based on the intensity to production capacity</li> <li>Achieved quarterly energy consumption reduction of 251 MWh through investment in facility upgrades</li> </ul>                                       | <ul style="list-style-type: none"> <li>Continue to monitor GHG reduction, air, water, and waste management</li> <li>Establish a carbon neutrality roadmap and promote Scope 3 assessment</li> <li>Join environmental initiatives such as CDP, TCFD, and RE100</li> </ul>  |
| 3    | Promotion of talent management                 | <ul style="list-style-type: none"> <li>Nurturing convergence talent</li> <li>Fostering next-generation leaders to drive future changes</li> <li>Providing various education opportunities to employees to cultivate job experts and global talent</li> <li>Create an excellent organizational culture to attract talent and maintain long service rate</li> </ul>                                     | <ul style="list-style-type: none"> <li>Accelerate awareness-raising among employees to respond to DT of industrial structures</li> <li>Operate education program to cultivate DT talent with expertise</li> </ul>   | <ul style="list-style-type: none"> <li>Secured excellent talent</li> <li>Operated Human Rights Management Committee</li> <li>Human rights management declaration and self-assessment of human rights materiality</li> <li>Conducted HLC and HTLC</li> </ul>   | <ul style="list-style-type: none"> <li>Strengthen human rights management focused on human dignity and value</li> <li>Make business decisions with human rights consideration</li> <li>Expand human rights training program for international business sites and supply chains</li> <li>Expand capacity-building programs for employees</li> </ul>  |
| 4    | Customer satisfaction enhancement              | <ul style="list-style-type: none"> <li>Building consumer trust through an established customer VOC response process</li> <li>Legal risks and reputational costs from failing to manage customer satisfaction</li> <li>Dominating the green energy market through increased consumer awareness and customer satisfaction activities</li> </ul>   | <ul style="list-style-type: none"> <li>Establish a high-quality, trust-based service (Warranty)</li> <li>Smart &amp; Feedback Service</li> <li>Minimize customer delivery risks</li> </ul>  | <ul style="list-style-type: none"> <li>Built long-term trust with customers through 25-year warranty products</li> <li>Provided customer-friendly monitoring service to enhance convenience</li> <li>Entered into renewable energy generation prediction market</li> <li>Established a global SCM and managed supply chain strictly by using overseas subsidiaries</li> </ul>         | <ul style="list-style-type: none"> <li>Continue customer-oriented quality enhancement activities</li> <li>Enhance customer satisfaction through prompt AS responses, using real-time monitoring information</li> <li>Maximize customer profits based on precise power generation prediction technologies</li> <li>Enhance productivity to comply with contract delivery deadline</li> </ul> |
| 5    | Strengthened labor-management partnership      | <ul style="list-style-type: none"> <li>Government labor reforms and labor opposition</li> <li>Intensified dual structure of the labor market</li> <li>Labor issues such as work hours reform and job insecurity</li> </ul>  | <ul style="list-style-type: none"> <li>Establish coexisting labor-management relationship based on mutual respect and trust</li> <li>Share human rights management guidelines through employment rules and codes of conduct for contractors</li> <li>Hold labor-management council meetings at least quarterly to enhance working conditions and welfare</li> </ul> | <ul style="list-style-type: none"> <li>Improved working conditions through labor-management council (Additional designation of substitute holidays, support for recreation facilities, support for wedding venues and facilities)</li> <li>Collected free opinions of employees through Hi-Square, a suggestion platform</li> </ul>   | <ul style="list-style-type: none"> <li>Strive to create a corporate culture of mutual trust and respect</li> <li>Continue to enhance working conditions and employee benefits</li> <li>Create a horizontal and free atmosphere</li> </ul>   |
| 6    | Enterprise-wide risk management                | <ul style="list-style-type: none"> <li>Potential damage to stakeholders due to insufficient risk management</li> <li>Management of negative financial &amp; non-financial impacts when identifying risks and establishing an improvement system</li> </ul>  | <ul style="list-style-type: none"> <li>Build management and evaluation systems to advance financial and non-financial risk management</li> </ul>  | <ul style="list-style-type: none"> <li>Strengthened supply chain ESG management through ESG evaluation KPIs</li> <li>Conducted self-assessments and due diligence for each contractor (Aug.)</li> <li>Completed ESG assessments for contractors (Sep.)</li> </ul>   | <ul style="list-style-type: none"> <li>Promote due diligence for lower-ranked contractors in ESG assessments</li> <li>Expand ESG assessments and support for contractors</li> <li>Introduce ESG-related KPIs</li> </ul>   |

# Communication with Stakeholders

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| Category  | Key issues & interests   |   | Main communication channels  |   | HD Hyundai Energy Solutions Activities  |  |
|---|--|---|--|---|---|--|
| Customers<br>                  | <ul style="list-style-type: none"> <li>Strengthening product and technology competitiveness</li> <li>Developing eco-friendly, high-value-added products</li> </ul>   | <ul style="list-style-type: none"> <li>Enhancing product safety</li> <li>Improving communication satisfaction</li> </ul>                                      | <ul style="list-style-type: none"> <li>Customer satisfaction surveys</li> <li>Customer service centers</li> </ul>  |   | <ul style="list-style-type: none"> <li>Conducted quality education for employees</li> <li>Obtained eco-friendly (low-carbon) product certifications (Korean Energy Agency's carbon verification system)</li> <li>Continued R&amp;D for products and developed customized solutions</li> </ul> |  |
| Shareholders and Investors<br> | <ul style="list-style-type: none"> <li>Enhancing shareholder value</li> <li>Producing stable business performance</li> <li>Managing business opportunities and risks</li> </ul>                              | <ul style="list-style-type: none"> <li>Sustainable management practices</li> <li>Transparent governance</li> </ul>  | <ul style="list-style-type: none"> <li>Investment briefings</li> <li>General Shareholders meetings</li> </ul>  | <ul style="list-style-type: none"> <li>Business reports</li> <li>Website</li> </ul>                             | <ul style="list-style-type: none"> <li>Disclosed Board's decisions</li> <li>Established and operated the ESG Committee</li> <li>Introduced electronic voting systems</li> <li>Implemented proxy solicitation systems</li> </ul>   | <ul style="list-style-type: none"> <li>Publicly disclosed dividend policies</li> <li>Notified agenda items before general meetings of shareholders</li> </ul>  |
| Employees<br>                  | <ul style="list-style-type: none"> <li>Fair evaluation and compensation</li> <li>Enhancing welfare and strengthening capabilities</li> <li>Promoting labor-management relations and communication</li> </ul> | <ul style="list-style-type: none"> <li>Sharing company management status</li> <li>Ensuring a safe workplace</li> </ul>  | <ul style="list-style-type: none"> <li>Labor-management council</li> <li>Reporting system (ethics, human rights)</li> <li>Internal intranet and newsletters</li> </ul> | <ul style="list-style-type: none"> <li>Dialogue with management</li> <li>Management status briefings</li> </ul> | <ul style="list-style-type: none"> <li>Operated diverse education systems</li> <li>Provided education to support retirement planning</li> <li>Operated the corporate culture task force</li> </ul>  | <ul style="list-style-type: none"> <li>Provided various welfare programs, including family support systems</li> <li>Implemented the PC-OFF system</li> <li>Obtained family-friendly company certification</li> </ul> |
| Contractors<br>                | <ul style="list-style-type: none"> <li>Promoting co-prosperity</li> <li>Strengthening fair trade</li> </ul>  | <ul style="list-style-type: none"> <li>Supporting contractors' capability enhancement</li> <li>Promoting contractors' safety and health</li> </ul>            | <ul style="list-style-type: none"> <li>Partner meetings</li> <li>Unfair trade consultation channels for partners</li> <li>Partner councils</li> </ul>                  |   | <ul style="list-style-type: none"> <li>Provided financial support for contractors</li> <li>Operated a fair trade system</li> <li>Evaluated safety management activities of contractors</li> </ul>   | <ul style="list-style-type: none"> <li>Provided education and technical support programs</li> <li>Invited excellent distributors to solar power energy exhibition and held meetings</li> </ul>                       |
| Government<br>               | <ul style="list-style-type: none"> <li>Participating in government policies</li> <li>Participating in and supporting government events</li> <li>Sharing information on industry and company</li> </ul>       | <ul style="list-style-type: none"> <li>Activating local economy</li> <li>Addressing safety and labor issues</li> </ul>  | <ul style="list-style-type: none"> <li>Policy advisory bodies</li> <li>Policy meetings</li> <li>Visits to the National Assembly and government Ministries</li> </ul>   |   | <ul style="list-style-type: none"> <li>Built a co-prosperity ecosystem</li> <li>Operated a fair trade compliance program</li> <li>Implemented and executed compliance guidelines for economic sanctions laws</li> </ul>   | <ul style="list-style-type: none"> <li>Developed business portfolios according to government regulations</li> <li>Invested in R&amp;D for green energy transition</li> </ul>   |
| Local Communities<br>        | <ul style="list-style-type: none"> <li>Revitalizing the local community</li> <li>Attracting industries and increasing local employment</li> <li>Protecting and improving the local environment</li> </ul>    | <ul style="list-style-type: none"> <li>Conducting community-focused social contribution activities</li> <li>Communicating with the local community</li> </ul> | <ul style="list-style-type: none"> <li>Local government councils</li> <li>Local community civic groups</li> <li>Local community volunteer organizations</li> </ul>     |   | <ul style="list-style-type: none"> <li>Operated talent cultivation programs in the local community</li> <li>Implemented policies to support socially disadvantaged groups</li> <li>Supported Investment in developing local community</li> </ul>  | <ul style="list-style-type: none"> <li>Encouraged employee participation in salary-sharing initiatives</li> <li>Conducted employee-participated social contributions, including volunteer activities</li> </ul>      |
| Media<br>                    | <ul style="list-style-type: none"> <li>Business performance and industry issues</li> <li>Major company issues</li> </ul>   | <ul style="list-style-type: none"> <li>Company's main business directions</li> </ul>  | <ul style="list-style-type: none"> <li>Press releases</li> <li>Media center on the website</li> <li>Media meetings</li> </ul>  |   | <ul style="list-style-type: none"> <li>Ensured timely provision of press releases</li> <li>Posted news on the website</li> </ul>  | <ul style="list-style-type: none"> <li>Supported journalist coverage</li> </ul>  |
| Common<br>                   | <ul style="list-style-type: none"> <li>ESG strategies and direction</li> <li>Current ESG initiatives and performance</li> </ul>  | <ul style="list-style-type: none"> <li>ESG evaluation rating</li> </ul>   | <ul style="list-style-type: none"> <li>Integrated report</li> <li>ESG website</li> <li>ESG meetings, conference calls</li> </ul>                                       |   | <ul style="list-style-type: none"> <li>Published integrated reports</li> <li>Posted information on the ESG website</li> <li>Conducted ESG meetings with investors and stakeholders</li> </ul>   |  |

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# Independent Assurance Statement

To readers of HD Hyundai Energy Solutions Integrated Report 2023

## Introduction

Korea Management Registrar (KMR) was commissioned by HD Hyundai Energy Solutions to conduct an independent assurance of its Integrated Report 2023 (the "Report"). The data and its presentation in the Report is the sole responsibility of the management of HD Hyundai Energy Solutions. KMR's responsibility is to perform an assurance engagement as agreed upon in our agreement with HD Hyundai Energy Solutions and issue an assurance statement.

## Scope and Standards

HD Hyundai Energy Solutions described its sustainability performance and activities in the Report. Our Assurance Team carried out an assurance engagement in accordance with the AA1000AS v3 and KMR's assurance standard SRV1000. We are providing a Type 2, moderate level assurance. We evaluated the adherence to the AA1000AP (2018) principles of inclusivity, materiality, responsiveness and impact, and the reliability of the information and data provided using the Global Reporting Initiative (GRI) Index provided below. The opinion expressed in the Assurance Statement has been formed at the materiality of the professional judgment of our Assurance Team.

Confirmation that the Report was prepared in accordance with GRI standards 2021 was included in the scope of the assurance. We have reviewed the topic-specific disclosures of standards which were identified in the materiality assessment process.

- GRI Sustainability Reporting Standards 2021
- Universal standards
- Topic specific standards
  - GRI 201: Economic Performance
  - GRI 205: Anti-corruption
  - GRI 302: Energy
  - GRI 305: Emissions
  - GRI 401: Employment
  - GRI 402: Labor/Management Relations
  - GRI 404: Training and Education
  - GRI 416: Customer Health and Safety
  - GRI 418: Customer Privacy

As for the reporting boundary, the engagement excludes the data and information of HD Hyundai Energy Solutions' partners, suppliers and any third parties.

## KMR's Approach

To perform an assurance engagement within an agreed scope of assessment using the standards outlined above, our Assurance Team undertook the following activities as part of the engagement:

- reviewed the overall Report;
- reviewed materiality assessment methodology and the assessment report;
- evaluated sustainability strategies, performance data management system, and processes;
- interviewed people in charge of preparing the Report;
- reviewed the reliability of the Report's performance data and conducted data sampling;
- assessed the reliability of information using independent external sources such as Financial Supervisory Service's DART and public databases.

## Limitations and Recommendations

KMR's assurance engagement is based on the assumption that the data and information provided by HD Hyundai Energy Solutions to us as part of our review are provided in good faith. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied. To address this, we referred to independent external sources such as DART and National Greenhouse Gas Management System (NGMS) and public databases to challenge the quality and reliability of the information provided.

## Conclusion and Opinion

Based on the document reviews and interviews, we had several discussions with HD Hyundai Energy Solutions on the revision of the Report. We reviewed the Report's final version in order to make sure that our recommendations for improvement and revision have been reflected. Based on the work performed, it is our opinion that the Report applied the GRI Standards. Nothing comes to our attention to suggest that the Report was not prepared in accordance with the AA1000AP (2018) principles.

**Inclusivity** HD Hyundai Energy Solutions has developed and maintained different stakeholder communication channels at all levels to announce and fulfill its responsibilities to the stakeholders. Nothing comes to our attention to suggest that there is a key stakeholder group left out in the process. The organization makes efforts to properly reflect opinions and expectations into its strategies.

**Materiality** HD Hyundai Energy Solutions has a unique materiality assessment process to decide the impact of issues identified on its sustainability performance. We have not found any material topics left out in the process.

**Responsiveness** HD Hyundai Energy Solutions prioritized material issues to provide a comprehensive, balanced report of performance, responses, and future plans regarding them. We did not find anything to suggest that data and information disclosed in the Report do not give a fair representation of HD Hyundai Energy Solutions' actions.

**Impact** HD Hyundai Energy Solutions identifies and monitors the direct and indirect impacts of material topics found through the materiality assessment, and quantifies such impacts as much as possible.

## Reliability of Specific Sustainability Performance Information

In addition to the adherence to AA1000AP (2018) principles, we have assessed the reliability of economic, environmental, and social performance data related to sustainability performance. We interviewed the in-charge persons and reviewed information on a sampling basis and supporting documents as well as external sources and public databases to confirm that the disclosed data is reliable. Any intentional error or misstatement is not noted from the data and information disclosed in the Report.

## Competence and Independence

KMR maintains a comprehensive system of quality control including documented policies and procedures in accordance with ISO/IEC 17021:2015 - Requirements for bodies providing audit and certification of management systems. This engagement was carried out by an independent team of sustainability assurance professionals. KMR has no other contract with HD Hyundai Energy Solutions and did not provide any services to HD Hyundai Energy Solutions that could compromise the independence of our work.

June 2024 Seoul, Korea

CEO *E. J. Hwang*



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# GHG Verification Statement

## HD Hyundai Energy Solutions

The Korea Management Registrar Inc. (hereinafter "KMR") has conducted the verification on the greenhouse gas (hereinafter "GHG") emission (Scope 1, 2) of HD Hyundai Energy Solutions (hereinafter "the Company") in 2023.

### SCOPE

Verification of all places of business and emission facilities under the control of the company.

### STANDARDS

- ISO 14064-1:2018, ISO 14064-3:2019
- IPCC Guidelines for National Greenhouse Gas Inventories (2006)
- Operational Guidelines for Reporting and Certification of Emissions in the GHG Emission Trading Scheme
- Verification Guidelines for GHG Emissions Trading Scheme Operation
- Guidelines for GHG Target Management Scheme Operation

### PROCEDURE

We conducted a risk analysis approach and on-site verification based on data evaluation, and we identified the appropriateness of the data and factors applied to GHG emission calculations based on objective evidence. The verification team verified the GHG emissions during the reporting period in a reasonable way based on the verification guidelines.

### INDEPENDENT

KMR does not have any stake in the verified entity and does not conduct verification with biased opinions/views. We have drawn an independent and objective verification conclusion based on the verification standards, and reviewed the every aspect of the verification we performed throughout the entire verification process through internal review

### LIMITATIONS

The verification team verified the related reports, information and data presented by the audited institution by sampling or enumeration methods. As a result, there are many inherent limitations, and there may be disagreements in the interpretation of appropriateness. Although we have tried to faithfully perform verification that meets the verification standards, we suggest that errors, omissions, and false statements that could not be found may be latent as the limitations to the verification.

### OPINION

- GHG verification has been performed to meet the reasonable assurance level according to the verification standards.
- We express that no significant errors were found in the calculation of emissions during the verification process, and that relevant activity data and evidence were appropriately managed and calculated. As a result, we express an "unmodified" opinion.
- Criticality: meets the criterion, which is less than 5%
- GHGs Emission (All places)

(Units : tCO<sub>2</sub>eq/yr)

| GHGs Emission | Direct emission (Scope1) | Indirect emission (Scope2) | Total (tCO <sub>2</sub> -eq) |
|---------------|--------------------------|----------------------------|------------------------------|
| 2023          | 6,162                    | 35,616                     | 41,779                       |

| Energy Consumption | Fuel | Electricity | Steam | Total (TJ) |
|--------------------|------|-------------|-------|------------|
| 2023               | 37   | 744         | 0     | 780        |

※ Note : There is a difference in the total amount of emissions and emissions by greenhouse gas and by workplace. (Total emissions are cut to a decimal point for each workplace unit and emissions are summed up for each workplace unit.)

### RESULTS

We confirm through verification that the emissions from major emission facilities have been calculated and reported without omission.

June 21, 2024

**KMR** 한국경영인증원  
Korea Management Registrar

CEO E. J. Hwang

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## Membership Status

- Korea Photovoltaic Industry Association (KOPIA)
- Korea New & Renewable Energy Association (KNREA)
- Korea Environmental Engineers Association in Chungbuk
- Korea Electrical Contractors Association (KECA)

## Awards and Recognition

- Apr. 2023: Commendation for Contribution to the Development of the Renewable Energy Industry by Daegu City
- Apr. 2023: Selected as a Top 10 Panels Brand by SolarReviews in the U.S.
- May 2023: Selected as a Top Performer by the PVEL, the U.S. certification organization

## Management Information Disclosure Channel

|                                      |   |
|--------------------------------------|---|
| HD Hyundai Energy Solutions Website  | <a href="https://eng.hd-hyundaies.co.kr">https://eng.hd-hyundaies.co.kr</a>   |
| HD Hyundai Energy Solutions Blog     | <a href="https://blog.naver.com/hyundai-es-blog">https://blog.naver.com/hyundai-es-blog</a>                         |
| HD Hyundai Group Ethical Management  | <a href="http://ethics.hd.com/html/main.html">http://ethics.hd.com/html/main.html</a>                               |
| HD Hyundai Group CSR Website         | <a href="https://csr.hyundai-holdings.co.kr/front/index">https://csr.hyundai-holdings.co.kr/front/index</a>         |
| DART (Financial Supervisory Service) | <a href="https://englishdart.fss.or.kr">https://englishdart.fss.or.kr</a>   |
| Investor Relations                   | <a href="https://eng.hd-hyundaies.co.kr/invest/financial.do">https://eng.hd-hyundaies.co.kr/invest/financial.do</a> |

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| Company introduction, investment information, product and dealer information, online customer service |
| Hyundai Energy Solutions products and major news  |
| Direction for Group's ethical management, Code of Ethics, online report / counseling                  |
| Collaborative contribution activities carried out with the participation of all employees             |
| Various disclosure data submitted mandatorily as a listed company or voluntarily                      |
| Regular business performance and future outlook   |

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## GRI 2: General Disclosure

| Category   | GRI Standards   | Number                                  | Location         | Remarks                |
|--|---|---|------------------|------------------------|
| The organization and its reporting practices       | Organizational details  | 2-1                                     | p. 6, 9          |                        |
|  | Entities included in the organization's sustainability reporting            | 2-2                                     | p. 67            |                        |
|  | Reporting period, frequency, and contact point                              | 2-3                                     | p. 67            |                        |
|  | Restatements of information   | 2-4                                     | -                | Specified in the notes |
|  | External assurance  | 2-5                                     | p. 59-60         |                        |
| Activities and workers                             | Activities, value chain and other business relationships                    | 2-6                                     | p. 6-9, 13       |                        |
|  | Employees   | 2-7                                     | p. 28            |                        |
|  | Workers who are not employees   | 2-8                                     | p. 28            |                        |
| Governance   | Governance structure and composition  | 2-9                                     | p. 11,36         |                        |
|  | Nomination and selection of the highest governance body                     | 2-10                                    | p. 36            |                        |
|  | Chair of the highest governance body 57-58                                  | 2-11                                    | p. 36            |                        |
|  | Role of the highest governance body in overseeing the management of impacts | 2-12                                    | p. 37            |                        |
|  | Delegation of responsibility for managing impacts 57                        | 2-13                                    | p. 36-37         |                        |
|  | Role of the highest governance body in sustainability reporting             | 2-14                                    | p. 11, 38-39, 45 |                        |
|  | Conflicts of interest   | 2-15                                    | p. 36            |                        |
|  | Communication of critical concerns  | 2-16                                    | p. 37            |                        |
|  | Collective knowledge of the highest governance body                         | 2-17                                    | p. 36            |                        |
|  | Evaluation of the performance of the highest governance body                | 2-18                                    | p. 39            |                        |
|  | Remuneration policies   | 2-19                                    | p. 39            |                        |
|  | Process to determine remuneration   | 2-20                                    | p. 39            |                        |
|  | Annual total compensation ratio   | 2-21                                    | p. 39            |                        |
|  | Statement from the highest governance body                                  | 2-22                                    | p. 4             |                        |
|  | Policy commitments  | 2-23                                    | p. 11            |                        |
|  | Embedding policy commitments  | 2-24                                    | p. 11            |                        |
|  | Strategy, policies and practices  | Processes to remediate negative impacts | 2-25             | p. 41                  |
| Mechanisms for seeking advice and raising concerns |   | 2-26                                    | p. 41-42         |                        |
| Compliance with laws and regulations               |   | 2-27                                    | p. 42            |                        |
| Membership associations                            |   | 2-28                                    | p. 61            |                        |
| Stakeholder engagement                             |   | Approach to stakeholder engagement      | 2-29             | p. 58                  |
|  | Collective bargaining agreements  | 2-30                                    | p. 27            |                        |

## GRI 3: Material Topic

| Category        | GRI Standards                        | Number | Location | Remarks |
|-----------------|--------------------------------------|--------|----------|---------|
| Material Topics | Process to determine material topics | 3-1    | p. 56    |         |
|                 | List of material topics              | 3-2    | p. 56-57 |         |
|                 | Management of material topics        | 3-3    | p. 57    |         |

## Economic Performance (GRI 200)

| Category                  | GRI Standards   | Number | Location     | Remarks             |
|---------------------------|---|--------|--------------|---------------------|
| Economic Performance      | Direct economic value generated and distributed                                 | 201-1  | p. 6, 40, 48 |                     |
|                           | Financial implications and other risks and opportunities due to climate change  | 201-2  | p. 66        |                     |
|                           | Defined benefit plan obligations and other retirement plans                     | 201-3  |              | Unmanaged Indicator |
|                           | Financial assistance received from government                                   | 201-4  | p. 15        |                     |
| Market Presence           | Ratios of standard entry level wage by gender compared to local minimum wage    | 202-1  |              | Unmanaged Indicator |
|                           | Proportion of senior management hired from the local community                  | 202-2  |              | Unmanaged Indicator |
| Indirect Economic Impacts | Infrastructure investments and services supported                               | 203-1  | p. 33-34, 53 |                     |
|                           | Significant indirect economic impacts   | 203-2  | p. 33-34     |                     |
| Anti-corruption           | Operations assessed for risks related to corruption                             | 205-1  | p. 41-42     |                     |
|                           | Communication and training about anti-corruption policies and procedures        | 205-2  | p. 42        |                     |
|                           | Confirmed incidents of corruption and actions taken                             | 205-3  | p. 42        |                     |
| Anti-competitive Behavior | Legal actions for anti-competitive behavior, anti-trust, and monopoly practices | 206-1  | p. 42        |                     |

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### Environmental Performance (GRI 300)

| Category            | GRI Standards  | Number | Location | Remarks                |
|---------------------|--|--------|----------|------------------------|
| Energy              | Energy consumption within the organization   | 302-1  | p. 21    |                        |
|                     | Energy consumption outside of the organization   | 302-2  | -        | To be calculated later |
|                     | Energy intensity   | 302-3  | p. 21    |                        |
|                     | Reduction of energy consumption  | 302-4  | p. 21    |                        |
|                     | Reductions in energy requirements of products and services   | 302-5  | p. 21    |                        |
| Water and Effluents | Interactions with water as a shared resource   | 303-1  | p. 21    |                        |
|                     | Management of water discharge-related impacts  | 303-2  | p. 21    |                        |
|                     | Water withdrawal   | 303-3  | p. 21    |                        |
|                     | Water discharge  | 303-4  | p. 21    |                        |
| Biodiversity        | IUCN Red List species and national conservation list species with habitats in areas affected by operations | 304-4  | p. 22    |                        |
| Emissions           | Direct (Scope 1) GHG emissions   | 305-1  | p. 21    |                        |
|                     | Energy indirect (Scope 2) GHG emissions  | 305-2  | p. 21    |                        |
|                     | Other indirect (Scope 3) GHG emissions   | 305-3  | -        | To be calculated later |
|                     | GHG emissions intensity  | 305-4  | p. 21    |                        |
|                     | Reduction of GHG emissions   | 305-5  | p. 21    |                        |
|                     | Emissions of ozone-depleting substances (ODS)  | 305-6  | -        | None                   |
|                     | Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions                            | 305-7  | p. 22    |                        |
| Waste               | Waste generation and significant waste-related impacts   | 306-1  | p. 22    |                        |
|                     | Management of significant waste-related impacts  | 306-2  | p. 22    |                        |
|                     | Waste generated  | 306-3  | p. 22    |                        |
|                     | Waste diverted from disposal   | 306-4  | p. 22    |                        |
|                     | Waste directed to disposal   | 306-5  | p. 22    |                        |

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### Social Performance (GRI 400)

| Category  | GRI Standards  | Number   | Location      | Remarks   | Category  | GRI Standards  | Number  | Location   | Remarks        |                |
|---|--|--|---------------|---|---|--|---|--|----------------|----------------|
| Employment  | New employee hires and employee turnover   | 401-1  | p. 27, 51     |   | Freedom of Association and Collective Bargaining                                    | Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk | 407-1   | p. 32  |                |                |
|   | Benefits provided to full-time employees that are not provided to temporary or part-time employees | 401-2  | p. 29, 52     |   |   | Child Labor  | Operations and suppliers at significant risk for incidents of child labor | 408-1  |                | Not applicable |
|   | Parental leave   | 401-3  | p. 29, 52     |   |   |  | Forced or Compulsory Labor  | Operations and suppliers at significant risk for incidents of forced or compulsory labor | 409-1          |                |
| Labor / Management Relations  | Minimum notice periods regarding operational changes   | 402-1  | p. 27         |   | Security Practices  | Security personnel trained in human rights policies or procedures  |   | 410-1  |                | Not applicable |
|   | Occupational Health and Safety   | Occupational health and safety management system | 403-1         | p. 24   |   | Rights of Indigenous Peoples   | Incidents of violations involving rights of indigenous peoples            | 411-1  |                | Not applicable |
| Hazard identification, risk assessment, and incident investigation  |  | 403-2  | p. 24         |   | Local Communities   | Operations with local community engagement, impact assessments, and development programs                       | 413-1   | p. 34  |                |                |
| Occupational health services  |  | 403-3  | p. 25         |   |   | Operations with significant actual and potential negative impacts on local communities                         | 413-2   |  | Not applicable |                |
| Worker participation, consultation, and communication on occupational health and safety                       |  | 403-4  | p. 25         |   | Supplier Social Assessment  | New suppliers that were screened using social criteria   | 414-1   | p. 32  |                |                |
| Worker training on occupational health and safety   |  | 403-5  | p. 25         |   |   | Negative social impacts in the supply chain and actions taken  | 414-2   |  | Not applicable |                |
| Promotion of worker health  |  | 403-6  | p. 25         |   | Public Policy   | Political contributions  | 415-1   |  | Not applicable |                |
| Prevention and mitigation of occupational health and safety impacts directly linked by business relationships |  | 403-7  | p. 24-25      |   | Customer Health and Safety  | Assessment of the health and safety impacts of product and service categories                                  | 416-1   | p. 30  |                |                |
| Workers covered by an occupational health and safety management system  |  | 403-8  | p. 25         |   |   | Incidents of non-compliance concerning the health and safety impacts of products and services                  | 416-2   | p. 24  |                |                |
| Work-related injuries   |  | 403-9  | p. 24         |   |   | Marketing and Labeling   | Requirements for product and service information and labeling             | 417-1  |                | Not applicable |
| Work-related ill health   |  | 403-10   | p. 24, 52     |   | Incidents of non-compliance concerning product and service information and labeling |  | 417-2   |  | Not applicable |                |
| Average hours of training per year per employee   | 404-1  | p. 13, 52  |               | Incidents of non-compliance concerning marketing communications | 417-3   |  |   | Not applicable   |                |                |
| Training and Education  | Programs for upgrading employee skills and transition assistance programs                          | 404-2  | p. 28         |   | Non-discrimination  | Substantiated complaints concerning breaches of customer privacy and losses of customer data                   | 418-1   | p. 44  |                |                |
|   | Percentage of employees receiving regular performance and career development reviews               | 404-3  | p. 51         |   |   |  |   |  |                |                |
| Diversity and Equal Opportunity   | Diversity of governance bodies and employees   | 405-1  | p. 11, 36, 51 |   |   |  |   |  |                |                |
|   | Ratio of basic salary and remuneration of women to men   | 405-2  | p. 51         |   |   |  |   |  |                |                |
|   | Incidents of discrimination and corrective actions taken   | 406-1  |               | Not applicable  |   |  |   |  |                |                |



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| Topic  | Accounting Metrics   | Code         | Unit                | Company's Response                    |
|--|--|--------------|---------------------|---------------------------------------|
| GHG Emissions                                      | (1) Gross global Scope 1 emissions, and (2) amount of total emissions from perfluorinated compounds  | TC-SC-110a.1 | tCO <sub>2</sub> eq | 6,162 tCO <sub>2</sub> eq             |
|  | Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets | TC-SC-110a.2 | -                   | p. 19, 66                             |
| Energy Management in Manufacturing                 | (1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable   | TC-SC-130a.1 | %                   | 95.2                                  |
| Water Management                                   | (1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress                                   | TC-SC-140a.1 | ton                 | 516,561                               |
| Waste Management                                   | Amount of hazardous waste from manufacturing, percentage recycled  | TC-SC-150a.1 | ton (%)             | 2,302.7 (99.7%)                       |
| Employee Health & Safety                           | Description of efforts to assess, monitor, and reduce exposure of employees to human health hazards  | TC-SC-320a.1 | -                   | p.24, 25                              |
|  | Total amount of monetary losses as a result of legal proceedings associated with employee health and safety violations   | TC-SC-320a.2 | KRW                 | None                                  |
| Recruiting & Managing a Global & Skilled Workforce | Percentage of employees that are foreign nationals   | TC-SC-330a.1 | %                   | 0.85                                  |
|  | Percentage of employees that are located offshore  |              |                     | 1.28                                  |
| Product Lifecycle Management                       | Percentage of products by revenue that contain IEC 62474 declarable substances   | TC-SC-410a.1 | %                   | Not applicable                        |
|  | Processor energy efficiency at a system-level for: (1) servers, (2) desktops, and (3) laptops  | TC-SC-410a.2 | %                   | Not applicable                        |
| Materials Sourcing                                 | Description of the management of risks associated with the use of critical materials   | TC-SC-440a.1 | -                   | p. 31                                 |
| IP Protection & Competitive Behavior               | Total amount of monetary losses as a result of legal proceedings associated with anti-competitive behavior regulations   | TC-SC-520a.1 | KRW                 | Not applicable                        |
| Activity Metrics                                   | Total production   | TC-SC-000.A  | -                   | Cell: 69,182,160<br>Module: 1,603,473 |
|  | Percentage of production from owned facilities   | TC-SC-000.B  | %                   | Eumseong Factory 100%                 |

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| Category            | Recommended disclosures  | HD Hyundai Energy Solutions Responses  |
|---------------------|--|--|
| Governance          | a. Describe the board's oversight of climate-related risks and opportunities.  | The BoD of HD Hyundai Energy Solutions manages climate change response as a materiality issue and oversees ESG-related matters, including climate change-related topics, through the ESG Committee. To strengthen the supply chain ESG management, in 2023, the ESG Committee of HD Hyundai Energy Solutions reviewed matters regarding the establishment of an ESG evaluation system for contractors, the promotion of biodiversity conservation activities, and energy consumption reduction activities. In addition, the ESG Committee approved the climate change response strategies.   |
|                     | b. Describe management's role in assessing and managing climate-related risks and opportunities.   | HD Hyundai Energy Solutions has established an integrated climate change response system among management, working-level employees, and experts to identify and manage the risks and opportunities related to climate change. Together with the HSE department, the dedicated climate change response organization, we have appointed a Chief ESG Officer. Furthermore, to ensure expertise, we operate an ESG advisory group, composed of experts in various fields from the group companies. The relevant environmental departments regularly review climate change agendas and key issues. The results of the discussion are reported to the CEO. Then the CEO presents these agendas to the ESG Committee for final decision-making. Finally, Issues discussed and decided by the BoD are implemented by operating departments. Throughout this process, the organization manages its climate change goals and performance.  |
| Strategy            | a. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.                               | HD Hyundai Energy Solutions identifies and categorizes the risks and opportunities that may arise due to climate change based on their projected timeframes. Short-term risks and opportunities are those expected to arise within five years, medium-term within five to ten years, and long-term beyond ten years. Financial and business-related impacts will be further identified in detail later. In the short term, we recognize stricter government regulations on GHG emissions and tightened mandatory disclosures as major risks. In the mid and long term, increased investment costs resulting from a transition to low-carbon products and technologies, as well as decreased investment due to uncertain climate change responses and negative reputation might be critical risks. Moreover, we acknowledge physical risks that include natural disasters caused by abnormal weather patterns such as flooding, typhoons, large forest fires, etc. On the other hand, we find business opportunities such as the growing demand for solar energy driven by the expanded use of renewable energy across the globe and the expanded development of high-efficiency cell and module technologies.  |
|                     | b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.                        | With the increased demand for carbon neutrality from home and abroad, the demand for renewable energy has dramatically grown accordingly. Against this backdrop, HD Hyundai Energy Solutions analyzes risks and opportunity factors arising from climate change from financial and strategic perspectives. On top of that, we consider the probability of such factors and the potential financial impacts that such an event may have on our business operations. Based on such analysis and considerations, we have established our response strategies to climate change. HD Hyundai Energy Solutions has responded to the rising demand for renewable energy by continuously increasing investments in R&D and production facilities. The resulting increase in sales may lead to another R&D investment opportunity to develop eco-friendly products. HD Hyundai Energy Solutions produces and sells low-carbon modules by obtaining the carbon certification (Grade 1), minimizes the Pb content in its floating PV modules. We also actively invest in R&D to develop green technologies such as bifacial PV modules that enhance power generation efficiency. HD Hyundai Energy Solutions are committed to development of high-efficiency next-generation cells and modules. |
|                     | c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario. | To assess the business impacts of climate change, HD Hyundai Energy Solutions analyzes physical and transition risks based on the 1.5°C and National Determined Contributions (NDCs) scenarios. As for the Eumseong Factory of HD Hyundai Energy Solutions, its annual GHG emissions exceed 25,000tCO <sub>2</sub> , subjecting the factory to the Emission Trading System (ETS). To ensure flexible responses to climate change policies and regulations, we review regulation risks involving Carbon Tax, Carbon Border Adjustment Tax, and ETS.   |
| Risk Management     | a. Describe the organization's processes for identifying and assessing climate-related risks.  | As for climate change risks, those departments in charge of risks and climate change identify and assess them. Through mutual cooperation, these departments respond to the issues identified as high risks and prevent potential risks by deriving improvement tasks.   |
|                     | b. Describe the organization's processes for managing climate-related risks.   | HD Hyundai Energy Solutions is consistently monitoring its production sites to manage climate risks, and the amount of effluent is managed as daily data. In the event of a climate change risk occurrence, it is directly reported to the CEO. For significant risks, it is put on the agenda of the ESG Committee for decision-making. In this way, we strive to effectively control the impact of climate change risks on the entire business operations.   |
|                     | c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.     | Climate risks are integrated into the company-wide risk management process for effective management. The identified risks and opportunities of climate change are reported to the ESG Committee, which leads the company's management and responses related to such risks in an integrated manner. Furthermore, we plan to advance the integrated management of climate change risks by operating ESG management organizations and establishing an incorporated management system.   |
| Metrics and 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.    | To evaluate climate change-related risks and opportunities, HD Hyundai energy Solutions has managed metrics such as GHG emissions, emissions intensity, energy consumption, renewable energy generation, waste generated and recycled, and water use. Such data is disclosed through the annual Integrated Report. In 2023, we recorded direct GHG emissions of 6,162tCO <sub>2</sub> eq and indirect emissions of 35,617tCO <sub>2</sub> eq. Moving forward, we will continue to manage data to reduce emissions. Furthermore, we will set mid and long-term reduction targets and establish a roadmap to achieve phased reduction in the future.   |
|                     | b. Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.  |  |
|                     | c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.                          |  |

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### Reporting Standards and Frameworks

This report is prepared in accordance with the Global Reporting Initiative Standards 2021 (GRI 2021), an international guideline for sustainable management reporting. In addition, to reflect key issues related to the solar power industry, the report complies with the framework of the Task Force on Climate-related Financial Disclosure (TCFD) and the sector disclosure metrics of the Sustainability Accounting Standards Board (SASB).

### Reporting Period

This report covers the activities of HD Hyundai Energy Solutions from January 1 to December 31, 2023. The report includes some activities in the first half of 2024 to reflect significant achievements made during the reporting period. This report also provides quantitative performance and metrics for the past three years from 2021 to 2023, allowing stakeholders to identify data trends. This report is published on an annual basis, and the previous report was released in July 2023.

### Reporting Scope

This report covers HD Hyundai Energy Solutions and its subsidiaries and the financial performances are presented in accordance with the Korea International Financial Reporting Standards (K-IFRS).

### Third-Party Assurance

The report has received third-party assurance from the Korea Management Registrar Inc., an independent assurance organization to enhance its reliability and quality.

### Contact Information for any inquiries about the report

|         |  |
|---------|--|
| Address | 477 BundangSuseo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea<br>9F, HD Hyundai Group Global R&D Center Finance Team, HD Hyundai Energy Solutions |
| Phone   | 02-479-6713  |
| Email   | hes.esg@hd.com   |

