2025 Hanwha Solutions Sustainability Report

Sustainable Solutions For All





ABOUT THIS REPORT

This report has been prepared to transparently disclose **Hanwha Solutions**' 2024 ESG strategy and its implementation results in pursuit of sustainable growth.

To this end, we identified our key ESG issues through a double materiality assessment and outlined our strategies for addressing these issues. In addition, we disclose our plans to address general ESG issues identified through global trend analysis, making this information available to users.

Hanwha Solutions will continue to actively pursue sustainable management by responding to stakeholder expectations and evolving sustainability trends.



Cover Story

The cover illustration represents **Hanwha Solutions**' commitment to delivering sustainable solutions through its **Chemical, Qcells,** and **Insight** Divisions.

Interactive PDF user guide

This report is provided in an interactive PDF format to enhance reader convenience and understanding. Each section can be accessed easily by clicking the icons.

Report overview

Hanwha Solutions publishes an annual sustainability report to transparently disclose our sustainability activities and performance across the environmental, social, and governance areas, and to engage in communication with a wide range of stakeholders.

Reporting period

This report primarily covers **Hanwha Solutions'** sustainability activities and financial and non-financial performance from January 1 to December 31, 2024. Some qualitative information from the first half of 2025 is also included, based on its timeliness and materiality.

Reporting principles

This report has been prepared in accordance with the GRI (Global Reporting Initiative) Standards 2021, the global standard for sustainability reporting. To disclose issue-specific activities relevant to our industry, the report references the SASB (Sustainability Accounting Standards Board) standards for key sectors. In addition, the TCFD (Task Force on Climate-Related Financial Disclosures) recommendations were considered to disclose **Hanwha Solutions'** climate-related risks, opportunities, and response strategies. The report also reflects the 10 Principles of the UN Global Compact (UNGC) and incorporates relevant indicators from the UN Sustainable Development Goals (SDGs), which are global sustainability initiative. Financial information contained in the report is based on the Korean International Financial Reporting Standards (K-IFRS).

Reporting scope

The financial performance presented in this report includes the consolidated financial data of **Hanwha Solutions** headquarters and its domestic and overseas operations. Non-financial performance is reported primarily based on data from **Hanwha Solutions** headquarters and all domestic sites of its three business divisions: **Chemical, Qcells, and Insight.**

External assurance

The financial data in this report has been independently audited by Samjong KPMG. The non-financial data has undergone independent assurance by the Korea Productivity Center Quality Assurance to ensure objectivity and reliability.

Contact information

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CEO MESSAGE

Dear stakeholders, I am Jung Woon Nam, the CEO of Hanwha Solutions.

First and foremost, I would like to express my sincere gratitude to all our stakeholders, including employees, shareholders, customers, suppliers, and local communities, for your unwavering support and trust in Hanwha Solutions.

Having faced various challenges over the past year, Hanwha Solutions continues to move forward with resilience, navigating a complex management environment shaped by persistent global oversupply, economic slowdown, and supply chain uncertainty.

From an ESG perspective, the growing intensity and frequency of climate-related disasters around the world have made it clear that climate change is no longer a distant threat, but a pressing reality. At the same time, issues such as biodiversity, natural capital, human rights, and responsible supply chain management are becoming increasingly important.

Given the current global context, becoming a sustainable company has never been more essential.

Hanwha Solutions is committed to fulfilling its social responsibilities while creating economic value by delivering global eco-friendly energy and materials solutions.

To this end, we are enhancing our manufacturing competitiveness and helping avoid greenhouse gas emissions globally by developing next-generation solar technologies and building the Solar Hub, an integrated solar production complex.

Furthermore, we aim to enhance energy efficiency and lead in carbon reduction by utilizing advanced IT technologies to integrate various distributed energy resources into a Virtual Power Plant (VPP) system, which enables the efficient management and optimization of energy use.

We are also contributing to the transition toward a circular and low-carbon economy by producing recycled polyethylene (rPE) using recycled materials and bio-attributed PVC. Both products have been certified under the Global Recycled Standard (GRS) and International Sustainability & Carbon Certification (ISCC) Plus.

In addition, we are actively promoting sustainable solutions across various areas, including the development of smart green industrial complexes.

Since establishing our 2050 Net Zero target in 2021, Hanwha Solutions has developed response strategies each year.

Moreover, the progress and plans for achieving Net Zero are reported to and overseen by the ESG Committee, which is composed solely of outside directors.

At the same time, we actively manage key ESG issues such as climate change, sustainable products, supply chains, environmental pollution, compliance, and safety. We are also committed to addressing emerging global priorities, including human rights and biodiversity.

Dear valued stakeholders.

Thank you.

Although challenges remain, we will continue laying a solid foundation for sustainable growth with unwavering determination, staying true to our role as a "Great Challenger." We will go further together on a path of sustainable growth.

June 16, 2025

CEO Jung Woon Nam

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Introduction to Hanwha Solutions

Company Overview

About Hanwha Solutions

Hanwha Solutions is a global provider of energy and materials solutions, with operations in chemicals, renewable energy (solar and wind), and real estate. We are steadily expanding our green portfolio through continued investment and research in eco-friendly, next-generation technologies, including advanced solar power, circular economy solutions, and renewable energy systems. Going forward, we remain committed to delivering sustainable, eco-friendly solutions that contribute to a better future for both humanity and the planet.

Company name Hanwha Solutions Corporation

Year of establishment	1965
CEO	Dong Kwan Kim, Jung Woon Nam, Jung Kwon Hong (as of the general shareholders' meeting in March 2025)
Head office address	86 Cheonggyecheon-ro, Jung-gu, Seoul, Korea
Sales revenue*	KRW 12,394,023 million
Total assets*	KRW 30,036,831 million
Number of employees	5,910 (as of December 31, 2024)
Website	https://www.hanwhasolutions.com/en/

^{*} Based on consolidated financial statements

Our Business

Hanwha Solutions offers a broad portfolio of solutions driven by differentiated technologies and innovation. By offering smart, eco-friendly energy solutions and specialized materials for diverse customer needs, Hanwha Solutions is evolving into a global leader in addressing climate change. To build a better future through sustainable growth for all, Hanwha Solutions operates a diverse portfolio of businesses.



Chemical Division

Sustainable Innovation.
Boundless Relevance.
Agenda for Next Generation.

The **Chemical Division** pioneered the production of PVC (polyvinyl chloride) in Korea, and continues to contribute to improving quality of life by producing essential petrochemical products which serve as foundational materials across a wide range of industries, such as LDPE (low-density polyethylene), LLDPE (linear low-density polyethylene), CA (chlor-alkali), and TDI. The division is expanding from basic petrochemical feedstocks into high-value-added businesses. These include Eco-DEHCH, a phthalate-free plasticizer; recycled polyethylene (rPE) made with recycled materials; and XDI, developed for the first time in Korea. These innovations reinforce the division's position as a competitive leader in the industry.



Ocells Division

Total energy solutions such as solar cell and module manufacturing, system solutions, downstream project development, power retail, and solar financing.

Guided by the mission of "We aim for a greener tomorrow with completely clean energy solutions," the **Qcells Division** strives to build a sustainable future. Its business spans the entire solar value chain, from manufacturing and sales of solar cells and modules, to system solutions that support energy conversion, storage, and management. It also provides solutions for solar project development and construction, as well as distributed energy solutions that minimize energy waste and deliver economic benefits to customers by optimizing power usage and trading. Through these efforts, the division is actively working to reduce carbon emissions across its operations and slow the pace of climate change.



Insight Division

Strategic businesses such as renewable energy development and supply for sustainable urban development, smart green industrial complexes projects, urban development, and data centers.

The **Insight Division** aims to establish a leading developer platform by leveraging its expertise across strategic business areas, including renewable energy, urban development, premium lifestyle, and data centers. It sets ambitious goals by moving beyond traditional development approaches and pursuing sector coupling across diverse industries. Through these efforts, the division is evolving into a comprehensive, solution-oriented developer focused on sustainable growth.



Q Energy Division*

Comprehensive renewable energy solutions in Europe, including solar power, wind power, BESS (battery energy storage systems), and green hydrogen The Q Energy Division is an energy company with over 25 years of experience. It develops, constructs, and manages projects across the entire value chain of solar power, wind power including repowering, and energy storage in the European market. It operates in key European markets including France, Spain, Portugal, Germany, and Italy, with approximately 1,000 MW under construction and an active pipeline of over 10 GW. The division is also piloting green hydrogen solutions as part of its commitment to leading the energy transition toward a more sustainable future.



Wire&Cable Division*

Global partner in the energy transition

As Korea's largest XLPE producer, the **Wire&Cable Division** is establishing itself as a global partner in the transition to sustainable energy. In materials markets where contamination control is critical to ensuring reliability, the **Wire&Cable Division** offers exceptional quality consistency and process transparency through its integrated production system, which encompasses raw materials (LD, EVA, and EBA) and finished products (XLPE and semiconductive compounds). Through continuous quality improvement, the division is striving to become a global leader in the wire and cable sector.

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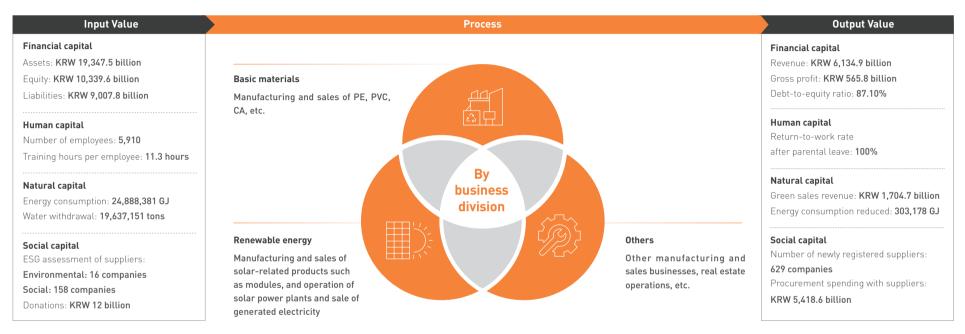




^{*} This division does not operate an independent domestic site.

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Business Performance*



Overview of economic and social value creation

(Unit: KRW million)

Category		Indicators	Measurement basis	2023	2024
Economic value creation	Customers	Sales revenue, etc.	Sales revenue	7,305,296	6,134,940
	Company	Tangible assets, etc.	Acquisition of tangible assets	717,926	792,082
	Shareholders	Dividends, etc.	Dividends paid	-	51,694
	Investors	Interest expenses, etc.	Interest expenses	270,693	325,116
Economic value distribution	Employees	Wages, etc.	Salaries, retirement benefits, and employee welfare expenses	736,725	650,625
	Suppliers	Purchase costs, etc.	Purchase costs and outsourcing service fees	4,823,623	5,775,043
	Local communities	Donations, etc.	Donations	7,908	11,977
	Government	Taxes, etc.	Taxes and dues, and corporate income tax expenses	(-)46,083	(-)100,451

^{*} Based on the separate financial statements

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Global Network



■ Chemical

Domestic network

Seoul Head Office, R&D Center, Chungcheong-Honam Sales Office, Yeungnam Sales Office, Yeosu Plant, Ulsan Plant 1,Ulsan Plant 2, Ulsan Plant 3

Overseas network

Hanwha Chemical (Ningbo) Co., Ltd., Hanwha Chemical (Shanghai) Co., Ltd., Hanwha Chemical (Sorporation Beijing Representative Office, Hanwha Chemical Corporation Guangzhou Representative Office, Hanwha Chemical (Thailand) Co., Ltd., Hanwha Chemical Malaysia Sdn. Bhd, Hanwha Chemical India Pvt. Ltd., International Polymers Company(IPC), Hanwha Cimarron LLC

Qcells

Domestic network

Seoul Head Office, Jincheon Plant, Gasan R&D Center, Pangyo R&D Center

Overseas network

Sales-Manufacturing-R&D Center in Americas, Europe, Asia Regions

★ Insight

Domestic network

Anseong Techno Valley, West Ochang Techno Valley, 2nd Yongin Techno Valley, H Techno Valley, Ulsan KTX Station Area Complex, Changwon Pungho Jangcheon District, Chuncheon Jade (Jade Palace, Jade Garden), REC Data Center, Anseong Techno Logistic

Overseas network

Asia: H Properties, Premium Hirafu Properties, H Summit (Japan) Americas: Cabrero, Centauro, San Alberto, Caldera, Chequen (Chile), HSIHC NHH (United States)

▲ Q ENERGY

Domestic network

N/A

Overseas network

Q ENERGY Europe GmbH, Q ENERGY France SA

♦ Wire&Cable

Domestic network

Seoul Head Office, Central Research Center, Yeosu Plant, Ulsan Plant 1

Overseas network

Hanwha Cable Solutions S.R.L Hanwha Europe GmbH,

Hanwha Chemical (Shanghai) Co., Ltd, Hanwha International LLC,

Hanwha Japan Co., Ltd.,

Hanwha Chemical Corporation Beijing, Representative Office,

Hanwha Chemical Corporation Guangzhou

Representative Office

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Hanwha Solutions ESG Governance

Role of the ESG Committee

The ESG Committee, established under the Board of Directors, oversees the company's ESG management. In 2024, the ESG committee reviewed or approved a total of 10 ESG-related agenda items, including the implementation of Net Zero and strategies to address climate-related risks and opportunities.

Role of the ESG Secretariat

The ESG Secretariat manages day-to-day ESG operations across the organization. It collaborates with relevant departments to review and address requirements from global ESG initiatives. The Secretariat also supports the ESG Committee by coordinating ESG initiatives and overseeing disclosures.

Working Group

The ESG Working Group plays a key role in executing function-specific ESG tasks. Each division and department carries out ESG-related tasks specific to its function and conducts an annual review of ESG risks. Based on these activities, the group develops risk mitigation processes and reports annually to the Board of Directors.

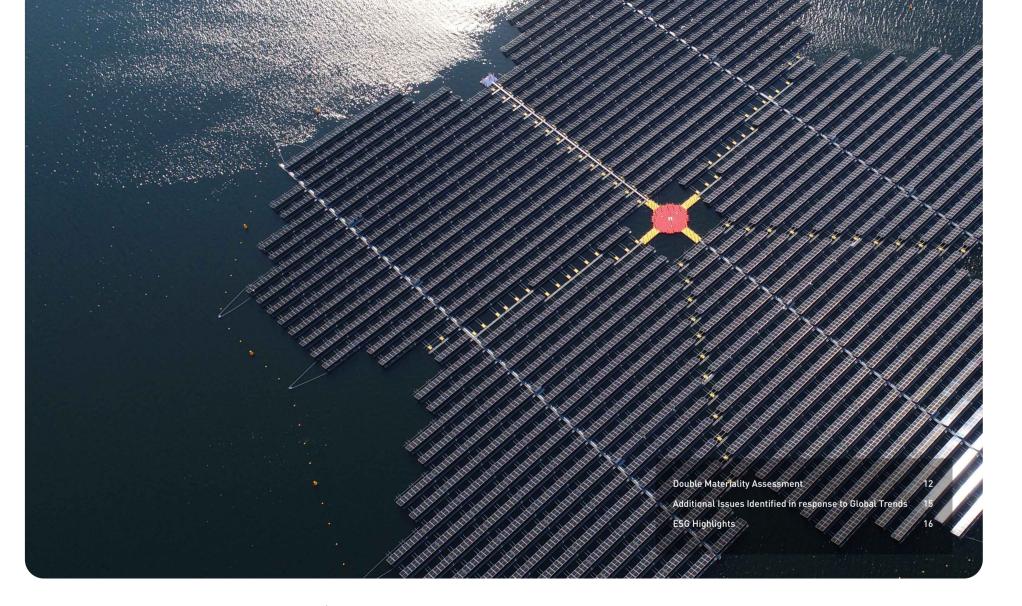
Meeting date	Agenda items	Attendance rate
2024.02.22	Report on the results of the ESG materiality assessment Report on 2023 Human Rights Management activities	100%
2024.04.25	 Approval of a donation to an educational foundation Report on Net Zero implementation (Q1 2024 performance and Q2 plan) 	100%
2024.07.25	 Report on Net Zero implementation (H1 2024 performance and H2 plan) and response strategy for climate risks and opportunities Report on ESG management (H1 performance and H2 plan) 	100%
2024.10.30	Report on Net Zero implementation (Q3 2024 performance and Q4 plan)	100%
2024.11.29	Approval of the revision to the Human Rights Management Guidelines	100%
2024.12.31	Report on ESG management (H2 2024 performance and 2025 plan) Report on Net Zero implementation (Q4 2024 performance and 2025 plan) and outcomes of climate risk and opportunity mitigation efforts	100%

	ESG ma	nagement governance structu	ire					
ESG Committee	Composition Outside directors	2. Meeting frequency At least once per quarter (on an ad hoc basis, if necessary)	3. Key roles Review and approval of ESG strategies and plans Review of ESG-related risks and opportunities management					
ESG Secretariat	Support for ESG-related	Collaboration with relevant departments on ESG tasks Support for ESG-related decision-making Preparation of integrated reports, response to evaluations, and review of global initiatives						
Working Group	Division-/department-level ESG tasks implementation Climate change / Safety and environment Safety, health & environment / R&D departments Product responsibility / Customer satisfaction Quality management / Sales departments Collaborative Cooperative Team							
	Local Community / Soc Communications / Godepartments at busin Information Secu	eneral affairs Corpessor sites, etc.	Governance orate planning / HR / Compliance / IR departments ESG related support usiness development / Finance / mmunications departments, etc.					

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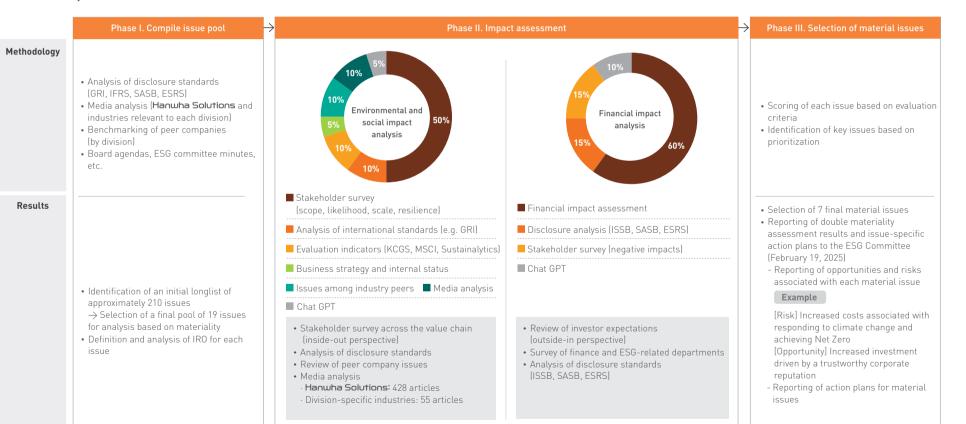


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Double Materiality Assessment

Hanwha Solutions has adopted the double materiality assessment methodology required by the ESRS, in line with global trends and in consideration of stakeholder expectations and concerns to identify key issues. Based on surveys of internal employees and external stakeholders, as well as evaluations by external specialists, we conducted an integrated analysis of impact materiality, which considers our impact on effects on the environment and society, and financial materiality, which addresses how sustainability issues affect our financial performance.

Double Materiality Assessment Process



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Double Materiality Assessment







Double Materiality Assessment

Hanwha Solutions conducted a double materiality assessment by evaluating environmental and social impacts (scale, scope, irremediability, likelihood) and financial impacts (scale, likelihood, potential negative effects).

	Core ESG issues and definitions	Environmental and social impact	Financial impact	Overall results	Stakeholder interest	GRI
Climate change response and Net Zero	Climate change poses financial and managerial risks not only from natural disasters but also through policy and regulatory changes, reputational impacts, and technological shifts. These risks pose a significant threat to long-term business sustainability. In response, we aim to achieve Net Zero and expand our business portfolio by developing solutions that support the transition to a low-carbon economy.	••••	••••	••••	Customers Shareholders and investors Employees, Suppliers, Local communities, Government agencies	GRI 302-1 ~ GRI 302-4, GRI 305-1 ~ GRI 305-7
Environmental Impact Management and Reduction	Minimizing our environmental footprint is a fundamental responsibility. This involves the effective management of waste, air and water pollutants, hazardous chemicals, and diligent water resource management, including reduced water usage.	••••	••••	••••	Suppliers Government agencies Local communities	GRI 303-1 ~ GRI 303-5, GRI 306-1 ~ GRI 306-5
Development of sustainable products and technologies	Innovation is a key driver of sustainable prosperity. Expanding investment in sustainable products and services reflects our strategic commitment to developing future-ready solutions. These efforts reflect our readiness to respond to market shifts and generate environmental and social value.	••••	••••	••••	Customers Shareholders and investors Employees, Local communities Government agencies	GRI 301-2, GRI 301-3
Safety & Health Management	A healthy and safe working environment is closely connected to workers' human rights and plays a key role in fulfilling corporate social responsibility. A strong occupational health and safety system mitigates financial risks and enhances productivity by fostering a safety-oriented culture.	••••	••••	••••	Employees Suppliers	GRI 308-1 ~ GRI 308-2, GRI 414-1 ~ GRI 414-2
ESG management in the supply chain	Supply chain quality management is essential to ensuring consumer safety and maintaining stakeholder trust. Low-quality supplies pose risks including revenue loss, supply chain disruptions, and reputational harm. To mitigate these risks, we strengthen supply chain sustainability by ensuring raw material integrity and process stability, while also implementing ESG management across the value chain.	••••	••••	••••	Shareholders and investors Suppliers	GRI 403-1 ~ GRI 403-10
Transparent and Ethical Governance	Transparent and ethical governance forms the foundation of sustainable management. It helps build stakeholder trust by supporting responsible decision-making and ensuring checks and balances within the organization.	••••	••••	••••	Shareholders and investors Government agencies	-
Compliance and Ethics Management	Compliance and ethics management are essential to fostering a sustainable and trust-based corporate culture. They proactively prevent risks by ensuring compliance with laws and making decisions based on ethical standards	••••	••••	••••	Customers Employees Shareholders and investors Government agencies	GRI 205-1 ~ GRI 205-3 GRI 206-1

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Double Materiality Assessment





Double Materiality Assessment

Hanwha Solutions conducted a double materiality assessment by taking into account factors for identifying environmental and social impacts, as well as those related to financial impacts. As a result, we identified seven Core ESG issues.

ore ESG issues	Key Impacts / Risks / Opportunities	Environmental and social impacts (positive/negative)	Financial impacts (risks/ opportunities)	Materiality level	Implementation plan	Report page	
	Acute and chronic physical risks from climate change	negative					
	Growing stakeholder expectations associated with Net Zero commitments	positive			Promotion of GHG reduction activities to achieve Net Zero by 2050		
Climate	Increased emissions allowance costs due to GHG emissions regulations		risks		Reporting of Net Zero performance and plans to the Board of Directors		
change response and	Higher operating and capital costs from the adoption of renewable energy and carbon-neutral technologies		risks	••••	(ESG Committee) Impact analysis and development of response strategies through climate	18-40	
Net Zero	Potential revenue from emissions allowance sales enabled by GHG reduction		opportunities		scenario review		
	New business opportunities and sales growth in response to national targets for expanding renewable energy adoption		opportunities		Monitoring of regulations and systems related to GHG and renewable energy		
F	Potential health impacts on employees and communities from pollutant emissions	negative			Minimization of air pollutants through installation of		
Environmental Impact Management	Rising consumer demand for circular, eco-friendly, and low-carbon materials driven by shifting consumption patterns	negative		••••	De-NOx systems in hydrogen boilers Reduction of cooling water usage through efficient operation of cooling towers Reduction in hazardous chemical usage through equipment upgrades Continued efforts to recycle designated waste		
and Reduction	Increased compliance and response costs due to stricter environmental regulations		risks				
Development	Contributing to sustainable development through eco-friendly innovations, including solar and bio-based products	positive		 Expansion of eco-certified product portfolio Production of bio-attributed products 			
of sustainable	Growing interest in utilizing unused land for solar energy		opportunities		Monitoring of regulations related to circular economy and plastics Ongoing development of key technologies for Anion Exchange Membrane Electrolysis Cell and cultured meat Ongoing development of manufacturing technologies for recycled products (e.g., rPE) and recyclable materials	55-6	
products and technologies	Increased sales opportunities driven by rising demand for bio-based and recycled products		opportunities				
	Promoting a safety-first culture to enhance awareness and vigilance	positive			Establishing a mutually reinforcing safety culture by 2030 through a three-		
	Workplace injuries affecting employees and contractors	negative		••••	phase roadmap • Establishment and implementation of policies based on four strategic goals	64-8	
Management	Increased investment and training costs for accident prevention and employee safety education		risks		and eight key action items to create a safe workplace Operation of health and safety councils		
ESG management	Supporting suppliers to build a sustainable value chain	positive			Strengthening of cooperative partnerships with suppliers and support for building a sustainable supply chain Enhancement of ESG management policies, including distribution of the	87-9	
in the supply chain	Increased investment costs for ESG support and higher procurement costs of raw materials due to ESG-related risks		risks		Supplier Code of Conduct Implementation of shared growth initiatives, including expanded online training and ESG consulting support	87-7	
Transparent	Strengthening stakeholder trust through ethical governance and effective oversight	positive			Appointment of outside directors as the majority of the board Enhancement of board expertise through internal committees	0/ 1/	
and Ethical Governance	Improved shareholder value and expanded investment opportunities through transparent disclosure of management information		opportunities		 Implementation of shareholder return policy through minimum dividend payments (KRW 300 per share, 2023–2025) 	96-11	
Compliance	Stakeholder trust may erode if a robust compliance framework and ethical culture are not maintained		risks		Semiannual compliance inspections [first and second half of the year] Enterprise-wide risk management activities	105-1	
and Ethics R	Rising costs from managing unethical conduct, including anti-corruption efforts and legal risks		risks		Quarterly compliance training for all employees, with role-specific programs Post-certification audits for ISO 37001 and ISO 37301	105-1	

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Double Materiality Assessment

Additional Issues Identified in response to Global Trends

Amid rapidly tightening global regulations and disclosure standards on sustainability, companies are increasingly expected to uphold higher levels of responsibility and transparency across environmental, social, and governance (ESG) domains. In particular, the adoption of international standards such as the EU's ESRS and the ISSB's IFRS S1 and S2 has shifted ESG disclosure from a voluntary practice to a legal obligation. This evolving landscape presents companies with a substantial challenge, as they are expected to go beyond issuing ESG reports and realign their business strategies and systems with a focus on long-term sustainability. In addition to the ESG core issues, Hanwha Solutions is responding to additional ESG issues that warrant attention in light of global trends.

Addition	nal ESG issues	Key global trends	Key responses by Hanwha Solutions	Report page
	Biodiversity management and conservation	Increasing disclosure demands related to biodiversity risks following the launch of the Taskforce on Nature-related Financial Disclosures (TNFD) Biodiversity protection and ecosystem restoration highlighted under the EU CSRD and EU Taxonomy Increasing investor expectations around deforestation prevention, marine conservation, and other nature-related issues	 Establishment of a management system for biodiversity preservation Protection initiatives for rare and endangered species of flora and fauna Programs to raise environmental awareness Ecosystem conservation activities in national parks 	115-121
0	Talent management	Growing preference for value-driven careers among Millennials and Gen Z Increasing investment in employee experience by global companies Rising turnover rates among global talent	 Operation of diverse job-specific training programs, including those for future-ready leaders, global experts, and industry specialists Implementation of certification support programs Operation of various internal communication channels to promote engagement within the organization 	122-127
\Diamond	Human rights and diversity	Increasing expectations for compliance with the UN Guiding Principles on Business and Human Rights (UNGPs) and the OECD Guidelines for Multinational Enterprises Growing emphasis on human rights due diligence under the EU Corporate Sustainability Due Diligence Directive (CSDDD)	Implementation of human rights risk management, including for vulnerable groups Operation of grievance and reporting mechanisms for human rights issues Human rights training for employees to promote diversity	128-131
	Community Development and Shared Growth	Inclusion of community contribution indicators in ESG ratings by agencies such as MSCI and S&P Growing demand for assessing and addressing corporate impacts on local communities Increasing importance of metrics for measuring social value	Establishment and operation of the ESG Committee and the CEO-led Social Contribution Committee Support for solar power installations for low-income households with limited energy access Support programs for community safety, mental health services, and children's centers	132-136
\Diamond	Product responsibility and customer satisfaction	Strengthening regulations related to product safety, sustainability, and information transparency Expansion of consumer rights protection laws	Acquisition and maintenance of ISO 9001 certification Operation of a Voice of the Customer (VOC) system to enhance customer satisfaction Incorporation of customer feedback through satisfaction surveys	137-139
\bigcirc	Privacy and Cybersecurity	Strengthening of data and information regulations across countries Annual damages from cyberattacks projected to reach USD 10 trillion (2025, Cybersecurity Ventures) Growing demand for data ethics and security awareness in AI, cloud, and IoT environments	Establishment of a global integrated information security management and governance framework Strengthened vulnerability management through cybersecurity drills and security validation Promotion of employee security awareness through training programs and phishing simulations	140-142
(§)	Risk management	The rise of compound risks driven by climate change, geopolitical tensions, and supply chain disruptions Enhanced risk disclosure requirements under frameworks such as TCFD and ISSB Growing expectations for corporate risk analysis and response procedures	Standardization of company-wide risk management framework Operation of a structured response process based on risk analysis and classification by division and department Annual reporting of risk identification and mitigation results to the board of directors	143-146

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Additional Issues Identified in response to Global Trends







ESG Highlights

Hanwha Solutions has pursued sustainable management across all aspects of environmental (E), social (S), and governance (G), while reflecting the unique characteristics and roles of our business divisions. We have focused particularly on improving energy efficiency and reducing resource consumption to minimize the environmental impact of our production processes. In parallel, we are striving to lead the way in developing eco-friendly products and processes by reducing amount of waste generation and increasing investments in research and development (R&D) for green technologies. From a social perspective, Hanwha Solutions is gradually increasing the proportion of female managers to strengthen diversity and inclusion within the organization. We also operate a "Dad Leave" program in addition to legally mandated parental leave, helping employees achieve a better work-life balance. In the area of governance, it is enhancing the activities of the ESG Committee and continuing to improve internal training and policies to foster a company-wide culture of compliance. To ensure transparency with all stakeholders, we have summarized our key ESG performance results for 2024 as follows.

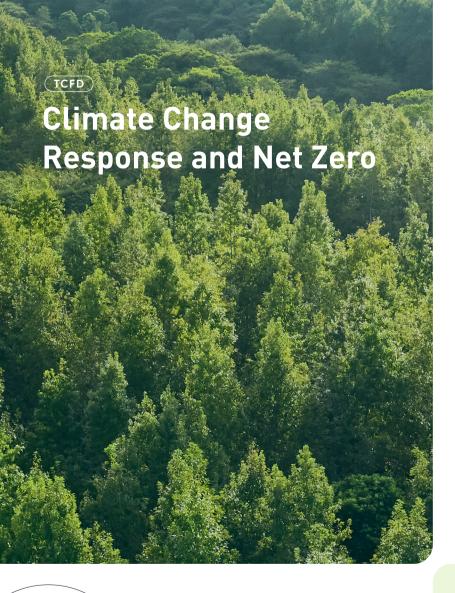
	Total energy consumption	Achieved world's highest tandem cell efficiency	Eco-friendly R&D investment (15.5% increase)	Waste generation	MSCI
E	YoY Change — 6.2%	28.6%	KRW 1,766 billion	YoY Change - 2.6%	Sustainalytics Sustainalytics (Medium risk)
S	Process safety management implementation rating Jincheon plant: Rating upgraded Ulsan Plant: Maintained P rating Achieved P rating	Number of employees who used the Dad Leave program 182 employees	Female managers (increase of 10) 214 managers	Social welfare: KRW 8,532 million Education and scholarships: KRW 2,697 million Environment and culture: KRW 334 million Others: KRW 414 million Total donations: KRW 11,977 million	20.5 sustinvest
G		ESG Committee attendance rate	Ethics and compliance certifications	Sites conducted anti-corruption risk assessment	Korea Institute of Corporate Governance and Sustainability
	CHAIRMAN OF THE BOARD (OUTSIDE DIRECTOR)	100%	Acquired at all sites ISO 37001, 37301	100%	Integrated rating B+

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OUR STORY

"In an era of climate crisis, we lead the energy transition and deliver solutions."

Hanwha Solutions has recognized climate change as a major management risk and is responding by establishing organizational systems and strategies aimed at achieving Net Zero by 2050.

At the same time, we regard this challenge as a strategic opportunity and are concentrating our efforts on developing eco-friendly energy solutions and recycled materials.

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Governance for Climate Action

Hanwha Solutions has established and operates a governance structure to systematically analyze and respond to the company-wide impacts of climate change on our business strategy.

Board of Directors (ESG Committee)

Oversight body for climate risks and opportunities and its responsibilities I The ESG Committee under Hanwha Solutions' Board of Directors serves as the decision-making body responsible for overseeing climaterelated risks and opportunities. It has been in operation since its establishment in 2021.

Purpose and Authority of the ESG Committee

Committee Name	Composition	Purpose and Authority
		Deliberation and resolution on key ESG policies and issues
ESG Committee	Four outside directors:	Establishment of mid- to long-term ESG strategies
(Chair: Jae Soo Chang)	Jae Soo Chang, A Young Lee, Jee-Hyeong Park,	Review of ESG policy implementation and related action plans
	Jeong-Ho Seo	Establishment and revision of ESG-related regulations
		5. Regular and ad hoc evaluation of ESG activities

By specifying the above matters in the ESG Committee's terms of reference—along with the review of financially and strategically material climate change impacts, and climate-related public policy engagement activities and outcomes—the Committee holds the authority and responsibility to oversee these areas.

Board-level Climate Governance Training | Hanwha Solutions provides training to enhance the ESG and climate-related expertise of our outside directors. In 2024, we conducted training sessions on responding to global ESG disclosure requirements, aiming to strengthen the Board's capacity to address ESG disclosures and deepen the outside directors' understanding of their importance.

2024 ESG Training for Outside Directors

Date	Participants	Training Topic
02.21	ESG Committee Members	Responding to global ESG disclosure requirements

Monitoring and management of climate-related risks and opportunities | The ESG Committee receives quarterly reports on Hanwha **Solutions'** climate-related risks and opportunities. Specifically, the Committee oversees company-wide response plans for the identified and assessed climate-related risks and opportunities through the firsthalf performance report. It then reviews the implementation outcomes of these plans in the second half of the year. In addition, the Committee regularly monitors the major climate goals, including Net Zero and renewable energy transition through quarterly reports on performance and plans.

Key Climate-related Oversight Activities by the ESG Committee in 2024

Date	Category	Key Report Details
04.25	Report	Net Zero implementation (Q1 performance and Q2 plan)
07.25	Report	Net Zero implementation (H1 performance and H2 plan) and Climate risk and opportunity response strategy
10.30	Report	Net Zero implementation (Q3 performance and Q4 plan)
12.31	Report	Net Zero implementation (Q4 performance and 2025 plan) and Outcomes of climate risk and opportunity mitigation efforts

Implementation Departments

The ESG Secretariat of Hanwha Solutions is composed of ESG representatives from each business division and supports the ESG Committee in effectively overseeing climate response and climate risk management activities. The Safety, Health & Environment Office of the Chemical Division and the EHS Department of the Qcells Division are responsible for formulating and planning climate response strategies, as well as providing practical support for the implementation of these strategies.

Management

Monitoring and management of climate-related risks and opportunities | Hanwha Solutions is strengthening the role of executive leadership in overseeing climate-related issues, in response to increasing demands from diverse stakeholders and to set our direction toward sustainable development. To review climate-related risks and opportunities, the CEO of the Chemical Division receives monthly reports from the Head of the Safety, Health & Environment Office on environmental performance, including greenhouse gas (GHG) emissions targets and its performance. In addition, the CEO is briefed annually on the status, plans, and costs associated with Net Zero implementation. The costs of renewable energy procurement are also incorporated into our mid- to long-term financial planning and used in strategic decisionmaking. Head of EHS Department (CSO) of the Qcells Division reports monthly to the CEO on GHG emissions and provides annual updates on Net Zero implementation, including emissions performance and detailed execution plans aligned with the division's mid- to long-term strategy.

Executive compensation | Hanwha Solutions incorporates climate change and sustainability performance into our executive compensation to link climate action with overall business performance.

In the Chemical Division, climate-related metrics—such as the expansion of low-carbon product manufacturing—were included in the key performance indicators (KPIs) for major executives, including the Production & Safety Generalization(CPO/CSO) and heads of plants. The KPI for the Head of the Safety, Health & Environment Office also included Net Zero performance for establishing eco-friendly production sites. In the Qcells Division, the KPI for the Head of EHS Department (CSO) incorporates the achievement of site-level Net Zero targets, ensuring accountability and oversight in emissions management.

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Strategy for Climate Action

Hanwha Solutions identifies climate-related risks and opportunities by considering a range of factors—such as our business structure, division-specific characteristics, domestic and global circumstances, and stakeholder expectations—and by incorporating the TCFD recommendations, industry-based guidance on implementing IFRS S2, and climate-related scenarios into the identification process. We assess how the identified risks and opportunities may impact our business model and value chain, and qualitatively analyze the potential financial effects. In addition, we conduct quantitative assessments of anticipated financial effects using climate scenario analysis. Each identified risk and opportunity is categorized and managed based on its expected time horizon—short-, medium-, or long-term. Based on these evaluations, risks are rated using our company-wide risk management framework under four categories: Level II, Level III, and No level. Since 2024, Hanwha Solutions has further refined our risk grading by incorporating time-specific classifications. These time frames are defined as follows: shortterm refers to 2025, aligned with the third phase of the Korean Emissions Trading Scheme (K-ETS); medium-term refers to 2030, aligned with the interim target year of our transition plan; and long-term refers to 2050, aligned with the long-term target year of our transition plan.



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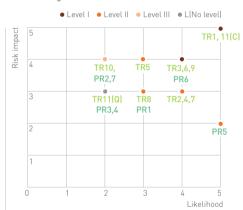
Climate-related Risks and Opportunities

Identification and assessment results |

					Time I	norizon (Risk	level)*
	Category		Climate-related risks and opportunities in 2024	Division	Short term	Medium term	Long term
	Regulation / Policy / Law	TR1	Tightened regulations on GHG emissions	Chemical	L	I	ı
	Policy, Reputation, Market	TR2	Increasing costs associated with the implementation of Net Zero and K-RE100	Qcells	L	II	II
	Regulation / Policy / Law	TR3	Expanded regulations on fossil-based products	Chemical	L	L	ı
	Regulation / Policy / Law, Reputation, Legal	TR4	Introduction of ESG (climate change/GHG) disclosure regulations	Chemical /Qcells	L	II	II
	Legal, Reputation	TR5	Increase in climate-related litigation such as greenwashing issues	Chemical	L	II	П
Transition risks	Technology	TR6	Emergence of low-carbon alternatives, transition to low-carbon technology, and risk of failure in new technology investments	Chemical	L	L	ı
	Market, Reputation	TR7	Changes in consumer behavior and prejudice against existing business areas	Chemical	П	II	Ш
	Market, Regulation	TR8	Uncertainty in the hydrogen market	Chemical	L	II	Ш
	Market, Reputation	TR9	Growing demand for renewable energy use	Chemical	П	II	
	Market	TR10	Shrinking market for fossil-based fuels and materials	Chemical	L	III	Ш
	Reputation	TR11	Increasing demands from customers, investors, and stakeholders for ESG (climate change) information and evaluation results	Chemical /Qcells	II/L	I/L	I/L
	Acute	PR1	Increased frequency of abnormal and unpredictable weather events	Chemical	L	II	П
	Acute	PR2	Risk of significant human and property damage from natural disasters	Qcells	L	L	Ш
Division	Acute	PR3	Supply disruption of imported raw materials due to extreme weather in sourcing regions	Chemical	L	L	L
Physical risks	Acute	PR4	Risk of supply disruption from suppliers due to natural disasters (e.g., earthquakes, floods)	Qcells	L	L	L
113K3	Acute	PR5	Risk of delivery delays due to natural disasters	Qcells	П	II	Ш
	Chronic	PR6	Environmental and climate changes caused by rising global average temperatures	Chemical	L	II	1
	Chronic	PR7	Asset loss risks associated with climate change	Qcells	L	L	Ш
	Energy sources, Resource efficiency	01	Carbon credit sales and energy savings through GHG reduction and offset projects	Chemical	V	V	
	Energy sources, Resilience, Products and services	02	Policies related to the expansion of renewable energy in power generation	Chemical		V	V
Opportunities	Products and services, Market, Resilience	03	Rising demand for bio-based and recycled plastics	Chemical	V	٧	
	Energy sources, Products and services	04	Expansion of renewable energy adoption and enactment of related laws	Qcells	V	V	V
	Products and services	05	Growing interest in solar energy solutions utilizing idle land	Qcells	V	V	V

Climate-related Risk Assessment Results

Based on long-term risk levels



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^{*} L [No level]: This refers to risks that were assessed as having relatively low likelihood and impact during the company-wide risk evaluation, and were therefore not assigned a rating. These risks are managed at the team level.

V: This indicates the time horizon during which an opportunity factor is expected to impact the business.



Climate-related Risks

Hanwha Solutions assesses identified climate-related risk factors by categorizing them into short-, medium-, and long-term time horizons. We analyze the scope of impact and potential financial effects of each risk factor. Based on this analysis, we strengthen the management of climate-related risks by establishing response strategies.

Details of climate-related transition risks I local communities

Details of Cliffate-re	lated transition risks				U Upstream (Suppliers) Operation (Company) D Downstream (Customers, shareholders, investors, local communit
Category	Risk factors and their impact on business	Division	Scope of impact	Risk level Short Medium Longterm term term		Response strategies and actions taken in 2024
Regulation / TR1 Policy / Law	Tightened regulations on GHG emissions Risk of responding to new policies introduced following the strengthening of NDCs Need for response to potential changes in the allocation method under the Emissions Trading Scheme (ETS) Potential decline in export competitiveness of carbon-intensive products due to the possible introduction of carbon border taxes (e.g., EU CBAM, U.S. CCA)	Chemical	00	LII	Higher operating expenses due to regulatory compliance costs Increase in cost of goods sold, selling and administrative (SG&A) expenses, trade payables, and other liabilities Higher procurement costs resulting from renewable energy sourcing Decline in sales revenue, trade receivables, and other receivables Rising costs of GHG reduction activities in response to emissions regulations Increase in property, plant and equipment, and other liabilities Financial effect of GHG reduction activities and emissions permits in 2024 Investment in energy-saving equipment in 2024 ¹ ; KRW 4,500 million Investment and reclassification from energy-saving equipment in 2024 ² ; KRW 114 million Emission permit-related current assets as of the end of 2024 (company-wide): KRW 1,143 million S Detailed transition scenario	Net Zero implementation Quarterly reporting of GHG emissions status to the board of directors (ESG Committee) Implementation of emission reduction activities, including renewable energy procurement through REC purchases and PPAs Regulatory monitoring and response Submission of recommendations on challenges in Net Zero implementation to the government Monitoring of regulations related to the K-ETS are submission of policy recommendations Monitoring and impact assessment of carbon border taxes (CBAM/CCA)
Policy, Reputation, Market	Increasing costs associated with the implementation of Net Zero and K-RE100 Increased operational costs associated with implementing GHG reduction activities aimed at Net Zero Rising procurement costs due to higher unit prices driven by increased demand for renewable energy	Qcells	U O D	L II II	Increased operating expenses due to compliance costs related to regulations Increase in property, plant and equipment, cost of goods sold, and other liabilities Investment in energy-saving equipment in 2024 ¹¹ : KRW 80 million Investment and reclassification from energy-saving equipment in 2024 ²¹ : KRW 1,103 million Increased operating expenses due to compliance costs related to regulations Increase in cost of goods sold, trade payables, and other liabilities Green Premium procurement cost in 2024: KRW 272 million Higher procurement costs due to rising prices of GHG emissions allowances Increase in cost of goods sold and other liabilities	Assessment of costs associated with implementin Net Zero and K-RE100 Monitoring of renewable energy market prices are related systems Analysis of electricity costs and renewable energy procurement at the Jincheon Plant Promotion of GHG emissions source reduction activities Purchase of 27 GWh of electricity through the Green Premium program in March 2024 Additional installation of a 2 MW solar power system at the Jincheon Plant in September 2024

1) Capital investment in energy-saving assets under construction-in-progress as of end-2024 (based on the statement of financial position)

2) Capital investment and account transfers related to energy-saving assets under property, plant and equipment (e.g., buildings, structures, machinery, and tools) as of end-2024 (based on acquisition cost in the statement of financial position)

- Emissions allowance cost in 2024: KRW 3 million

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							U Upstream (Suppliers) Operation (Company) Downstream (Company)	Customers, shareholders, investors, local communities	
Category	Risk factors and their impact on business	Division	Scope of impact	Risk level Short Medium Long		Long	Anticipated financial effects	Response strategies and actions taken in 2024	
Regulation / Policy / Law	Expanded regulations on fossil-based products • Decline in demand for plastic products due to plastic-related regulations and agreements • Response to national plans and regulations on the use of bio-based and recycled materials	Chemical	000	term	term	term	Decline in sales revenue of fossil fuel-based products such as plastics Decrease in sales revenue, trade and other receivables Increase in operating expenses due to costs associated with regulatory compliance and product/process transitions Increase in cost of goods sold, SG&A expenses, trade and other payables Increase in costs for purchasing recycled materials Increase in inventories, trade and other payables	Regulatory monitoring and response Conducting impact analysis in accordance with relevant regulations and agreements Certification for the use of bio-based materials Completion of ISCC PLUS renewal and new certification, with the number of certified product groups increasing from 10 to 11 The product of	
Regulation / Policy / Law, Reputation, Legal	Introduction of ESG (climate change/GHG) disclosure regulations • Growing trend of ESG-related regulations both domestically and internationally • Need to prepare for mandatory ESG disclosure, including climate-related disclosure • Potential compliance risks and reputational risks, such as reduced corporate credibility, associated with mandatory ESG disclosure	Chemical Qcells	000	L	II	II II	Increase in operating expenses due to costs associated with regulatory compliance Increase in cost of goods sold, SG&A expenses, trade and other payables Decline in corporate value and imposition of fines in the event of non-disclosure, omission, or misrepresentation after the introduction of mandatory disclosure requirements Increase in non-operating expenses, trade and other payables; decrease in tangible and intangible assets	Monitoring and response to domestic and international ESG disclosure regulations Review of our status in relation to IFRS S2 and the draft Korean Sustainability Disclosure Standards(KSDS) Submission of opinions on draft KSDS and mandatory ESG disclosure regulations Participation in seminars on climate-related disclosure standards	
Legal, Reputation	Increase in climate-related litigation such as greenwashing issues • Potential reputational and compliance risks, such as a decline in corporate credibility, in the event of litigation resulting from unintentional greenwashing	Chemical	000	L	II	II	Legal expenses incurred in the event of litigation Increase in non-operating expenses, trade and other payables Decline in corporate value, sales revenue, and operating profit due to reputational damage caused by greenwashing Increase in non-operating expenses; decrease in tangible and intangible assets, sales revenue, operating profit, trade and other receivables	Third party verification for ensuring accuracy and reliability Third-party verification of the CDP report, sustainability report, and domestic GHG emissions (Scope 1, 2, and 3) Proactive identification and review of risks Monitoring of greenwashing-related cases	

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							U Upstream (Suppliers) Operation (Company) Downstream (C	Customers, shareholders, investors, local communitie	
Category	Risk factors and their impact on business	Division	Scope of impact	Short	Risk level Medium term	Long	Anticipated financial effects	Response strategies and actions taken in 2024	
	Emergence of low-carbon alternatives, transition to low-carbon technology, and risk of failure in new technology investments						Reduction in sales revenue due to decreased market opportunities resulting from technology dominance by leading companies Decrease in sales revenue, trade and other receivables	Establishment of a support system for low-carbon technologies and businesses Provision of climate-related feedback during the	
Technology	Reduced business entry opportunities due to market dominance and exclusive ownership of key technologies by leading companies in the low-carbon sector	Ch a wissel	U O D				Increase in investment costs due to the transition to low-carbon processes and businesses	review of new low-carbon business opportunities	
	Increase in costs associated with technology adoption for the transition to low-carbon	Chemical U		L	L		Increase in property, plant and equipment, and other liabilities Increase in costs due to investment failure		
	processes or sustainability-related businesses • Risk of failure in R&D or investment in						Increase in SG&A expenses, trade and other payables, non-operating expenses; decrease in property, plant and equipment	<u> </u>	
	immature sustainability-related technologies Changes in consumer behavior and prejudice						Increase in procurement costs for circular resources or low-carbon materials	· Monitoring and response to customer	
	against existing business areas • Decline in demand and sales of existing						Increase in procurement costs for circular resources or tow-carbon materials Increase in inventories, trade and other payables	requirements - Diversification of raw materials, including bio-	
Market.	products and increase in the need for sustainable raw material sourcing due to increasing requirements for the use of	Chemical (1) (0) (0)			II	Increase in costs to comply with disclosure and management requirements Increase in cost of sales, SG&A expenses, trade and other payables	based and physically recycled materials - Sharing of product carbon footprint - Review of LCA update		
Reputation	Increase in management items due to growing requirements for product carbon) II	II		Decline in sales revenue and transition costs due to the shift away from fossil-based products	- Renewal of Environmental Product Declaration (EPD) certificates operated by KEITI		
	footprint disclosure or management Decline in brand value resulting from the						Decrease in sales revenue, trade and other receivables; increase in cost of sales, trade and other payables		
	growing negative perception of fossil-based products								
	Uncertainty in the hydrogen market						Increase in operating costs due to rising hydrogen prices	· Monitoring of market trends	
Market, Regulation	Heightened risk of hydrogen supply shortages and rising prices driven by volatility in the low- and zero-carbon energy market						> Increase in cost of sales, inventories, trade and other payables	- Monitoring of low- and zero-carbon energy markets	
	Increased risk of investment recovery caused by uncertainty in hydrogen policy	Chemical	U O O	L	II	II			

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_			Scope of	Risk level Short Medium Long term term term		rel			
Category	Risk factors and their impact on business	Division	impact				Anticipated financial effects	Response strategies and actions taken in 2024	
Market, Reputation	Growing demand for renewable energy use Increase in renewable energy unit price due to growing demand for renewable energy Decrease in demand and market size for products using non-renewable energy TR9	Chemical	000)	II	I	Increase in operating costs due to renewable energy procurement Decrease in sales revenue, trade and other receivables Renewable energy procurement cost in 2024: KRW 1,326 million Potential decline in sales revenue from products using non-renewable energy Decrease in sales revenue, trade and other receivables	Renewable energy monitoring and management Monitoring of government plans and policies related to renewable energy (e.g., the 11th Basic Plan of Long-term Electricity Supply and Demand) Submission of opinions on PPAs Monitoring of renewable energy procurement status Use of renewable electricity	
								- Total 13 GWh through RECs, PPAs, and self generation	
Market T	Shrinking market for fossil-based fuels and materials Increase in the prices of energy and						Short-term increase in LNG prices and rise in operating costs due to global circumstances	Monitoring of trends Analysis of KEPCO electricity price trends Monitoring of renewable energy procurement	
	fossil-based raw materials due to reduced development of fossil-based fuels and feedstocks (coal, oil, and gas)	Chemical	000	L	III	III	> Increase in cost of sales, inventories, trade and other payables	status	
	Increasing demands from customers, investors, and stakeholders for ESG						Increase in costs to respond to external requirements	· Climate-related disclosure and ESG rating response	
	(climate change) information and evaluation						> Increase in cost of sales, SG&A expenses, trade and other payables	 Publication of the 2024 sustainability report Disclosure of climate-related information through 	
	results • Decline in external credibility due to inadequate implementation of climate-related	Chemical	000	Ш	1	1	Decrease in sales revenue and operating profit due to decline in brand value and credibility following a drop in ESG ratings	environmental information disclosure system operated by the Ministry of Environment	
	social responsibilities						> Decrease in sales revenue, operating profit, trade and other receivables	 Participation in CDP Climate Change and Water programs 	
Reputation	Increase in response activities due to growing demands from investors and stakeholders for climate-related disclosures						Potential decrease in investment and increase in capital financing costs in case of failure to meet investor and stakeholder requirements	- Response to ESG-related investor inquiries Third party verification to ensure accuracy and	
	Potential loss of competitiveness in the absence of disclosure, compared to peers who disclose climate-related information	0==			1	1	> Decrease in cash and cash equivalents, short- and long-term borrowings	reliability - 2023 Scope 1, 2, and 3 emissions from domestic sites	
	Loss of customers and decline in investment caused by negative public sentiment following a drop in ESG ratings	Qcells) L	L	L		- 2023 Scope 3 emissions from overseas sites (Qcells Division)	

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				Scope of	R	Risk level				
Category		Risk factors and their impact on business	Division	impact	Short I term	Medium term		Anticipated financial effects	Response strategies and actions taken in 202	
		Increased frequency of abnormal and unpredictable weather events						Increase in repair costs due to damage to production facilities	· Analysis of physical risks and development of response measures	
		Production disruptions and facility repairs						Increase in cost of sales, non-operating expenses, trade and other payables; decrease in property, plant and equipment	- Conducting climate scenario analysis	
		due to damage to production facilities and infrastructure						Decrease in sales revenue due to production disruptions	- Identifying high-risk areas based on extreme weather indicators and establishing response	
		Increase in energy consumption and						> Decrease in sales revenue; increase in trade and other receivables	strategies	
	PR1	greenhouse gas emissions during periods of extreme heat or cold	Chemical	UOD	L	Ш	Ш	Increase in energy costs due to higher energy consumption	 Submission of opinions on the development of national-level physical risk assessment tools 	
		• Increase in worker safety risks and decline in						> Increase in cost of sales, SG&A expenses, trade and other payables	the government • Emergency response - Response in accordance with site-specific emergency manuals	
		productivity						Increase in costs for securing water supply		
		 Increase in water supply risks and production disruptions due to the increase in number of 						> Increase in cost of sales, SG&A expenses, trade and other payables		
		water-scarce areas						S Detailed physical scenario		
		Risk of significant human and property						Increase in recovery costs for damage restoration	· Implementation of special safety inspections	
		damage from natural disasters • Human and property damage caused by						> Increase in cost of sales, non-operating expenses, trade and other payables	 Post-winter / fall hazard special inspections: 32 issues identified and corrective actions 	
		typhoons, heavy rain, snowstorms, and						Increase in costs for safety equipment and training	completed	
		earthquakes		U O D				> Increase in cost of sales, SG&A expenses, trade and other payables	 Summer season (storm, fire, heatwave) special inspections: 27 issues identified and corrective 	
					L			Decrease in sales revenue due to production suspension caused by property damage	actions completed	
	PR2		Qcells			L	Ш	> Decrease in sales revenue, trade and other receivables	- Winter season special inspections: 24 issues	
								Impairment resulting from the loss or damage of property, plant and equipment and inventories	identified and corrective actions completed	
								Increase in non-operating expenses; decrease in property, plant and equipment, and decrease in inventories	Д	
								S Detailed physical scenario		
		Supply disruption of imported raw materials						Increase in procurement and transportation costs for raw materials	· Submission of opinions on national-level phys	
		due to extreme weather in sourcing regions • Potential disruption in raw material supply and product manufacturing due to extreme						> Increase in cost of sales, inventories, trade and other payables	risk assessment tools - Exploring response measures, including	
	PR3		Chemical		1	1	ı		reviewing credible open-source data	
FK		weather in sourcing regions for imported raw materials		300	, -	_	_		 Submission of opinions on the development of national-level physical risk assessment tools to the government 	

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Category	Risk factors and their impact on business	Division	Scope of impact	Sho		evel ium Long m term		Response strategies and actions taken in 2024
	PR4 Risk of supply disruption from suppliers due to natural disasters (e.g., earthquakes, floods) • Production and delivery delays or loss of potential sales revenue due to raw material supply disruptions • Increase in procurement costs of raw materials due to sourcing from alternative suppliers or emergency procurement	Qcells	000) L	. L	. L	Increase in raw material procurement and transportation costs Increase in cost of sales, inventories, trade and other payables	Ongoing monitoring of suppliers and response planning Continuous monitoring of suppliers' raw material supply status and prompt response planning upon damage reports in the event of disasters Implementation of multi-sourcing through dual vendor operations for certain items
Acute	Risk of delivery delays due to natural disasters • Loss of potential sales revenue due to delays in securing shipping space • Increase in freight costs due to booking alternative shipping space	Qcells	U O D) II	l ll	II	Decrease in sales revenue due to loss of sales opportunities from delayed delivery Decrease in sales revenue, trade and other receivables Increase in freight costs due to more expensive alternative shipping options Increase in SG&A expenses; decrease in sales revenue, increase in trade and other payables Detailed physical scenario	- Securing shipping space and enhancing logistics flexibility - Securing shipping space and stable freight rates through direct bookings and annual contracts with carriers - Exploring alternative export methods such as reefer containers and Ro-Ro vessels in response to shipping space shortages
Chronic	Environmental and climate changes caused by rising global average temperatures Increase in energy consumption due to changes in controlled range caused by rising average temperatures	Chemical	000	L	. 11	I	Increase in energy costs due to changes in controlled range Increase in cost of sales, SG&A expenses, trade and other payables Loss of sales revenue due to recovery costs and production suspension caused by damage Increase in cost of sales, non-operating expenses, trade and other payables; decrease in sales revenue, trade and other receivables, and inventories Detailed physical scenario	Implementation of Net Zero Implementation of Net Zero and renewable energy procurement to mitigate climate-related risks - Submission of policy recommendations to the government regarding challenges in achieving Net Zero - Assessment and response planning for physical risks - Conducting climate scenario analysis - Identifying high-risk areas based on extreme weather indicators
Chronic	Asset loss risks associated with climate change • Asset losses and production disruptions caused by extreme heat, flash floods, coastal inundation, river flooding, typhoons, wildfires, water stress, and drought	Qcells	000	L	. Ц	. III	Recovery costs incurred for damage restoration Increase in cost of sales, non-operating expenses, trade and other payables Decrease in sales revenue due to production suspension caused by property damage Decrease in sales revenue, trade and other receivables Impairment losses resulting from damage to or loss of property, plant and equipment and inventories Increase in non-operating expenses; decrease in property, plant and equipment and inventories	Identification and analysis of physical climate risk indicators Conducting identification and analysis of physical risks at domestic sites based on S&P Global Climanomics

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Climate-related Opportunities

Hanwha Solutions has identified the time horizon and potential scope of impact for climate-related opportunities, and analyzed their respective financial effects. Based on this analysis, we have developed response strategies to maximize these opportunities.

	Opportunity factors and their impact		Scope of	Risk level		
Category	on the business	Division	impact	Short Medium Long term term term	Anticipated financial effects	Response strategies and actions taken in 2024
	Carbon credit sales and energy savings through GHG reduction and offset projects				Increase in profits from the sale of surplus emissions allowances or externally secured carbon credits	• Conducting Greenhouse gas reduction activities - Fuel conversion from LNG to co-combustion wit
	Sale of surplus emission allowances resulting in emissions below the emission allowance				> Decrease in cost of sales, SG&A expenses; increase in other receivables	by-product hydrogen at the VCM furnace in the Chemical Division's Yeosu Plant , and the
	through GHG reduction activities at business				Reduction in operating costs by avoiding the purchase of additional carbon credits	system development to expand the co-combustion ratio
ergy sources,	sites • Sale of carbon credits secured through GHG	Chemical			> Decrease in cost of sales, trade and other payables	- Emissions reduction of approximately 6,000 tons
esource ficiency	• Sale of carbon credits secured through GHG emission offset projects	Chemical		VV	Reduction in operating costs through energy savings	through renewable energy transition (REC, PPA, and self generation)
	Energy savings through enhancement of process efficiency				Increase in cost of sales; decrease in SG&A expenses, trade and other payables	and sett generation,
					S Detailed transition scenario	
	Policies related to the expansion of renewable energy in power				Increase in profits from the sale of surplus emissions allowances as a result of renewable energy use	· Expansion of renewable or low-carbon energy procurement
	The state of the s					
	energy in power Expansion of opportunities to use green power due to the increase in the national renewable energy generation ratio				Decrease in cost of sales, SG&A expenses; increase in other receivables Increase in sales revenue from sales of products using renewable energy	procurement - Total of 13 GWh through RECs, PPAs, and self
	energy in power Expansion of opportunities to use green power due to the increase in the national renewable energy generation ratio Growth of the hydrogen ecosystem				renewable energy use Decrease in cost of sales, SG&A expenses; increase in other receivables	procurement - Total of 13 GWh through RECs, PPAs, and self
silience, oducts and	energy in power Expansion of opportunities to use green power due to the increase in the national renewable energy generation ratio	Chemical	000	V V	Decrease in cost of sales, SG&A expenses; increase in other receivables Increase in sales revenue from sales of products using renewable energy	procurement - Total of 13 GWh through RECs, PPAs, and self
silience, oducts and	energy in power Expansion of opportunities to use green power due to the increase in the national renewable energy generation ratio Growth of the hydrogen ecosystem Improvement in corporate reputation through	Chemical	000	V V	Decrease in cost of sales, SG&A expenses; increase in other receivables Increase in sales revenue from sales of products using renewable energy Increase in sales revenue, trade and other receivables	procurement - Total of 13 GWh through RECs, PPAs, and self
nergy sources, esilience, roducts and ervices	energy in power Expansion of opportunities to use green power due to the increase in the national renewable energy generation ratio Growth of the hydrogen ecosystem Improvement in corporate reputation through	Chemical	U O D	V V	Decrease in cost of sales, SG&A expenses; increase in other receivables Increase in sales revenue from sales of products using renewable energy Increase in sales revenue, trade and other receivables Increase in sales revenue from entry into new markets	procurement - Total of 13 GWh through RECs, PPAs, and self

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							Upstream (Suppliers) Operation (Company) Downstream (Company)	Customers, shareholders, investors, local communities)
	Opportunity factors and their impact		Scope of		Risk leve	el		
Category	on the business	Division	impact	Short	Medium term		Anticipated financial effects	Response strategies and actions taken in 2024
	Rising demand for bio-based and recycled						Revenue growth from sales of low-carbon products	· Production of bio-attributed PVC and EVA and ISCC
	plastics • Meeting the growing demand for circular						> Increase in sales revenue, trade and other receivables	Plus certification - Renewal and new acquisition of ISCC Plus
Products and	economy and low-carbon						Additional sales revenue generated through the introduction of new businesses and services	certifications (expanded from 10 to 11 product groups)
services, Market, Resilience	• Securing early-mover advantage in new markets including bio-based and recycled	Chemical	000	V	V		> Increase in sales revenue, trade and other receivables	\cdot Production of rPE and promoting GRS certification
	plastics						Expanded investment capacity supported by improved capital availability from new market entry and early-mover advantage	- Renewal of GRS certification and improvement in the proportion of recycled content (80%, 50%, 32% in 2023 → 80%, 55%, 50% in 2024)
							> Increase in cash and cash equivalents, borrowings and long-term borrowings	in 2023 → 80%, 55%, 50% in 2024)
	Expansion of renewable energy adoption and						Revenue growth driven by new business models	· Expansion of renewable energy business models
	enactment of related laws						> Increase in sales revenue, trade and other receivables	and continued R&D of next-generation products - Registration as a renewable energy electricity
	Improvement of corporate reputation through government-led industry revitalization						Securing investment funds and reducing capital procurement costs through	supplier under the Electric Utility Act and exploration of new business models such as
Energy sources,	Growing interest in new businesses such as solar products and renewable energy						increased capital availability driven by enhanced corporate reputation	RE100 consulting services
Products and services	consulting services	Qcells		V	V	V	Increase in cash and cash equivalents, borrowings and long-term > borrowings; decrease in non-operating expenses, trade and other	 Launch of business initiatives under the newly enacted Special Act on Activation of Distributed
	Business expansion through the development						payables	Energy
	of new business models in the electricity market, such as power brokerage and electricity bidding							- Preparation for mass production through pilot line operation for next-generation cells
	Growing interest in solar energy solutions						Sales growth from rising demand for solar products	· Policy proposal for customized product
	utilizing idle land						> Increase in sales revenue, trade and other receivables	deployment by idle land type and pilot project implementation
Products and services	Increased demand for solar products optimized for installation on farmland, water surfaces, and buildings, creating opportunities for the growth of sales revenue.	Qcells	000	V	V	V		- Policy proposals for the development of the agrivoltaic market and pilot installation of noise- barrier solar systems
	Diversification of project initiators, including the government, public institutions, and cooperatives							- Review of plans to obtain certifications of diversified eco-friendly solar modules

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Climate Resilience and Anticipated Financial Effects

Scenario Analysis: Physical Risks

Hanwha Solutions identifies and assess physical risks across the company to mitigate and adapt to both acute and chronic risks.

Scenarios used in the analysis and rationale for selection | To proactively respond to physical risks arising from climate change, Hanwha Solutions analyzed physical risks based on the four SSP(Shared Socioeconomic Pathways) scenarios recently adopted by the IPCC: SSP1-2.6, SSP2-4.5, SSP3-7.0, and SSP5-8.5.

Anticipated financial effects of physical risks (PR1 & 2, PR6 & 7) for each domestic business site |

MAAL* Less than -1% Less than 0%	0% Less than 1% Less	s than 2% Less than 3% Les	ss than 4% Less than 5%	Less than 6% Less than 7%	6 Less than 8% Less than 9°	% 10% or more

SSP1-2.6 scenario

Division	Danian		Pluvia	l Floo	d	Temp	eratu	re Ext	remes	(Coasta	l Floo	d		Dro	ught			Wildfire				opical	Cyclo	ne	Water Stress				Fluvial Flood			
Division	Region	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s
	Yeosu																																
Chemical	Ulsan																																
	Daejeon																																
0==!!=	Jincheon																																
Qcells	Eumseong																																
Insight	Chuncheon																																

SSP3-7.0 scenario

Division	Danian		Pluvia	l Floo	d	Temp	eratu	re Exti	remes	(Coasta	al Floo	d		Dro	ught		Wildfire			Tropical Cyclone				,	Water	Stress	5	Fluvial Flood				
Division	Region	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s
	Yeosu																																
Chemical	Ulsan																																
	Daejeon																																
Ocolle	Jincheon																																
Qcells	Eumseong																																
Insight	Chuncheon																																

SSP5-8.5 scenario

)s (30s													ıght			Wilc	iiii e		111	ppicat	cal Cyclone		• • •		,	water	Stress			luvial	FLUUL	4
	305	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s	20s	30s	40s	50s		

^{*} MAAL (Modeled Average Annual Loss): It refers to the modeled average annual asset loss rate. A negative MAAL value indicates that the risk level of the corresponding indicator is expected to decrease compared to the past.

Scenario analysis results | The results of the scenario analysis indicate that the financial effects of physical risks tend to increase over time and are greater under high-emissions scenarios than under low-emissions scenarios. Among the climate hazards, temperature extremes were identified as having the highest financial impact. Water stress at sites in Yeosu, Ulsan, and Chuncheon is projected to have a lower risk in the future compared to the past (1950–2000 baseline), resulting in reduced financial effects. However, the risk of water stress is expected to persist. Meanwhile, no coastal flood risk was identified across any domestic sites.

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Although credible and evidence-based sources were used to estimate financial effects, the projections involve assumptions about future events and therefore include significant uncertainty.



Assumptions and approach of the scenario analysis

- Scenarios: SSP1-2.6, SSP2-4.5, SSP3-7.0, SSP5-8.5 (SSP1, SSP3, and SSP5 results were disclosed)
- Analysis tool: S&P Global Climanomics
- Indicators: Pluvial Flood, Temperature Extremes, Coastal Flood, Drought, Wildfire, Tropical Cyclone, Water Stress. Fluvial Flood
- Sites analyzed: Major domestic and overseas sites (results for domestic sites were disclosed)
- Analysis period: Q1 2025 (conducted annually)

SSP scenarios

SSP1-2.6	SSP2-4.5	SSP3-7.0	SSP5-8.5
A case where eco- friendly and sustainable economic growth is achieved through advances in renewable energy technologies	A case with moderate levels of climate change mitigation and socio- economic development	A case where climate policies are passive, technological progress is slow, and society remains vulnerable to climate change	A case focused on rapid industrial and technological development, with high fossil fuel consumption and rapid, unregulated expansion
\downarrow	\downarrow	\downarrow	\
Projected temperature rise by 2100	Projected temperature rise by 2100 2.7°C	Projected temperature rise by 2100	Projected temperature rise by 2100 4.4°C

Response strategies and actions taken I Hanwha Solutions has established and is implementing a 2050 Net Zero target to mitigate long-term physical risks and reduce climate-related risks, as analysis results show that the financial effects of physical risks increase over time and with higher greenhouse gas emissions. Based on the analysis, risks from extreme weather events, abnormal climate conditions, and natural disasters (PR1, PR2, PR3), as well as risks related to rising global average temperatures (PR6, PR7), have been identified and classified as acute and chronic physical risks, and are managed as part of the company-wide risk management system.

Hanwha Solutions has established an internal emergency response system to respond to situations in the event of unexpected extreme weather events while paying special attention to safety management to prevent disruptions to our production facilities. Furthermore, we conduct ongoing monitoring of raw material supply conditions and secure inventories in advance when potential risks to the supply chain are detected, thereby enhancing the continuity of our production system.

The Chemical Division is enhancing its emergency preparedness by incorporating natural disaster response measures into its management procedures. In particular, to prevent productivity loss among employees during periods of extreme heat, the division has introduced measures such as guidance on preventing heat-related illnesses.

The Qcells Division has established procedures to help prevent harm to people and property due to natural disasters. It also conducts annual special safety inspections in preparation for summer storms and winter conditions. As of 2024, all identified issues from the most recent inspection have been fully resolved. To mitigate the impact of extreme heat, which has shown a relatively high financial effect, the division has implemented measures such as providing designated rest periods and spaces during the summer, and distributing heatwave-

For water stress, scenario analysis results for the Ulsan and Yeosu regions—where the Chemical Division operates—indicate that future risk levels may be lower than in the past. However, according to the World Resources Institute (WRI), water stress in these regions is categorized as High in Yeosu and Medium-High in Ulsan. In response, the division is reviewing the construction of water reuse facilities and is planning additional measures, including the development of a contingency plan, to address potential water shortages.

The Insight Division is working to reduce water consumption by using water processed at its own wastewater treatment facility. The treated water is reused at Jade Garden (a botanical garden) and Jade Palace GC(a golf club), both located in Chuncheon.

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Scenario Analysis: Transition Risks

The Chemical Division conducted a scenario analysis on its transition risk to assess the resilience of its Net Zero roadmap and to identify the financial effect of the risk related to greenhouse gas emissions regulations.

Scenarios used in the analysis and their rationale | Considering Hanwha Solutions' emissions profile (A high proportion of Scope 2 emissions and a significant share from the Chemical Division) and our industry (manufacturing), we adopted the International Energy Agency (IEA)'s Global Energy and Climate (GEC) Model for scenario analysis. In addition to the NZE 2050 scenario from the GEC Model revised in 2024, the analysis also included the STEPS and APS scenarios to assess the impact of emission related policies.

IFA GFC Model Scenarios

STEP Scenario

A scenario based on the implementation of stated policies. It reflects current policy settings by evaluating energy policies by sector and country that are either already in place or under development.

AP Scenario Announced Pledges Scenario

A scenario that assumes full implementation of each government's Nationally Determined Contributions (NDCs) and long-term Net Zero targets within their announced timeline

NZE Scenario

A scenario that presents a global pathway for the energy sector to achieve Net Zero emissions by

IEA Carbon Price by Scenario (2030)

STEP Scenario (Republic of Korea) 56 USD/tCO2

AP Scenario (Advanced economies with Net Zero pledges)

135 USD/tCO₂

NZE Scenario (Advanced economies with Net Zero pledges)

140 USD/tCO₂

Assumptions and approach for scenario analysis |

Variable: Carbon prices based on each scenario presented in the IEA GEC Model.

(Note: As the 2025 carbon price is not specified in the IEA scenarios, it was assumed to be KRW 10,000.)

Emission pathways: BAU (Business As Usual) emissions and Emissions aligned with Net Zero goals Key assumptions: (Emissions) Includes emissions from capacity expansion and applies currently used emission factors.

> (Allocations) In the case of the STEPS scenario, allowance volumes are based on the current allocation plan. As for the APS and NZE scenarios, both pre-allocations and paid allocations are assumed based on Korea's national carbon neutrality scenario. For the short term (2025), KAU25 (Korea Allowance Unit 25) is applied.

Financial effects of transition risk (TR1) and opportunity (O1) associated with emissions regulations I The following figure shows financial effects of the transition risk (TR1) and opportunity (O1) associated with greenhouse gas emissions regulations. While reasonable and verifiable information from a variety of sources was used in assessing the financial effect, the assessment involves assumptions about future events, and

Carbon Emission Regulatory Costs under IEA Scenarios (short-/mid-term)

therefore, there is a significant degree of uncertainty in this information.



Scenario analysis results | The scenario analysis indicates that carbon prices are expected to be higher under the NZE (Net Zero Emissions by 2050) scenario than in other scenarios, resulting in greater emissions emission regulatory costs or profits. In addition, by 2030, all scenarios are expected to incur emission regulatory costs under BAU emissions, while making profits when emissions are at the target level.

Response strategies and actions taken | To implement Net Zero and achieve reduction targets, we are promoting a low-carbon energy transition through renewable energy procurement and fuel switching using byproduct hydrogen. In addition, to enhance oversight of emissions management, we have reported our Net Zero implementation performance to the Board of Directors (ESG Committee) on a quarterly basis.

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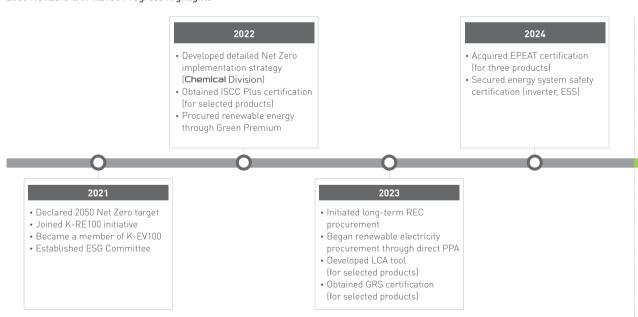


Risk and Opportunity Response Plan

2050 Net Zero Roadmap

Hanwha Solutions established our "2050 Net Zero" goal in 2021 to limit global temperature rise to 1.5°C and address the climate crisis. Based on this target, we have been actively implementing various greenhouse gas (GHG) reduction initiatives to mitigate climate-related risks and maximize associated opportunities. Hanwha Solutions aims to achieve Net Zero by 2050 by reducing Scope 1 and 2 GHG emissions by 35% by 2030 and 60% by 2040, compared to the base year of 2018, on a standalone basis. Key strategies to achieve this target include improving energy efficiency, transitioning to renewable electricity, converting fuels, and adopting carbon capture and utilization (CCU). Hanwha Solutions annually reviews detailed implementation plans for GHG reduction, including the required reduction volume to meet our targets, associated costs, and applicable technologies. Given our emissions profile, expanding the use of renewable electricity is a key strategy for achieving the target. Accordingly, we are working toward sourcing 100% of our electricity from renewable sources by 2050 and are participating in the K-RE100 initiative to support this transition.

2050 Net Zero & K-RE100 Progress Highlights



2050 Net Zero Implementation Strategy

Category	Details						
	Energy consumption reduction						
Scope 1 & 2	Transition to renewable electricity						
(Operational sites)	Fuel transition to by-product hydrogen						
	- Carbon capture and utilization (CCU)						
Scope 3 (Value chain)	Use of sustainable raw materials and development of a circular economy						



• Targeting Net Zero GHG emissions at operational sites

· Aiming to achieve K-RE100

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GHG Emissions Reduction

Hanwha Solutions is committed to reducing greenhouse gas (GHG) emissions from raw material input to production processes and operations in order to respond climate-related risks and opportunities.

Energy consumption reduction | In 2024, the Chemical Division carried out various energy-saving initiatives, such as process optimization, which are expected to reduce greenhouse gas (GHG) emissions by approximately 16,000 tons. In addition, following the capitalization of electrolyzer replacements in 2025, the annual reduction in GHG emissions is estimated at approximately 7,500 tons.

From 2022 to 2023, the **Qcells Division** carried out an LED lighting replacement project at its plants in Jincheon and Eumseong. In 2023, the division also installed an optimized cooling system in Jincheon to reduce energy consumption from HVAC operations, which account for a significant portion of the facility's electricity use. The initiatives led to energy savings of approximately 7.2 GWh in 2024.

Fuel transition | The Chemical Division is working to reduce fossil fuel consumption by utilizing by-product hydrogen generated from the CA process of the Base Chemical Business as an internal fuel source in the VCM cracker. A hydrogen co-combustion piping system was installed in 2022 and capitalized in 2023 to support the construction of a hydrogen co-combustion system. Since then, by-product hydrogen has partially replaced conventional fuel, leading to an estimated annual reduction in GHG emissions of about 9,000 tons compared to using only fossil fuels. In 2024, the division began capitalizing investments to increase the co-combustion ratio. Upon completion of the system in 2025, the GHG emissions reduction is estimated at approximately 48,000 tons per year compared to full fossil fuel combustion. In addition, a minor reduction in GHG emissions was achieved in 2024 through fuel switching and HVAC system replacement in the R&D building.

Use of sustainable raw materials | The Chemical Division purchases bio-based ethylene (derived from palm oil) and bio-circular ethylene (derived from used cooking oil) to produce and sell bio-attributed PVC and EVA, as part of its efforts to utilize biomass-based feedstocks. It also produces and sells rPE (recycled polyethylene) products made from recycled feedstocks. The division aims to further expand the use of sustainable feedstocks to help reduce greenhouse gas emissions, promote resource circulation, and contribute to building a circular economy.

Carbon capture and utilization (CCU) | The Chemical Division builds collaborative frameworks with national research institutes, universities, and leading companies to promote carbon capture, utilization, and reduction projects and R&D. Through these initiatives, the division plans to capture carbon dioxide emitted from facilities where fuel switching is not feasible, as well as from incineration plants. It will then regenerate the captured CO₂ into feedstocks using conversion technologies, contributing to emissions reduction and resource reuse.

K-EV100 initiative | In 2021, Hanwha Solutions joined K-EV100, a program led by the Ministry of Environment, and pledged to convert all company-owned vehicles to eco-friendly vehicles (e.g., electric or hydrogen) by 2030. As of 2024, we own 11 eco-friendly vehicles out of a total of 132 (excluding vehicle types not subject to eco-friendly conversion). We plan to continue our phased transition to eco-friendly vehicles and expand related infrastructure, including electric vehicle charging stations.

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Renewable Energy Transition

In 2024, Hanwha Solutions secured a total of 45 GWh of renewable electricity. This included 12.9 GWh for the Chemical Division and 32.2 GWh for the Qcells Division.

Green Premium | The Qcells Division procures renewable electricity through the Green Premium program operated by Korea Electric Power Corporation (KEPCO). In 2024, the division secured 27 GWh of renewable electricity through this program.

Purchase of Renewable Energy Certificates (RECs) | In 2022, the Chemical Division signed a long-term contract with a renewable electricity supplier to purchase Renewable Energy Certificates (RECs) with a capacity of 5.3 MW. Through this agreement, the division procured approximately 6.9 GWh of renewable electricity in 2023 and about 6.7 GWh in 2024

Direct Power Purchase Agreement (PPA) for renewable energy | In 2023, the Chemical Division signed a direct PPA with a capacity of 15 MW and began gradually procuring renewable electricity starting in December 2023. Through this agreement, the division procured 274 MWh of renewable electricity in 2023 and 5.7 GWh in 2024. Upon full supply of the contracted capacity, the division expects to secure approximately 19 GWh of renewable electricity annually.

On-site renewable energy self generation | The Chemical and Qcells Divisions leverage idle space at their facilities to secure renewable electricity through on-site generation. The Chemical Division operates solar power facilities with a total capacity of 455 kW at multiple sites—including rooftops and other areas—across the Yeosu Plant, the Ulsan Plant, and Research & Development Institute. In 2024, these facilities generated 557 MWh of electricity.

The Qcells Division has continued to expand on-site solar generation capacity at its Jincheon Plant since the initial installation of a 563.4 kW rooftop solar power system in 2016. Additional systems were installed on the employee parking lot in 2018 (1,003.2 kW) and on rooftops in 2023 (2,377.6 kW) and 2024 (1,984.3 kW), bringing the total installed capacity to 5,928.5 kW as of 2024. These systems generated 5.2 GWh of renewable electricity in 2024, and are expected to generate approximately 6 GWh annually from 2025 onward.

On-site Renewable Energy Generation at the Qcells Jincheon Plant



Building 1 rooftop (installed in 2016)

- · Investment amount: KRW 1.1 billion
- Generation capacity: 0.6MW



GHG reduction effect Approx 280 tons/year

Employee parking lot (installed in 2018)

- · Investment amount: KRW 1.9 billion
- · Generation capacity: 1.0 MW



GHG reduction effect Approx 500 tons/year

Building 2 rooftop (installed in 2023)

- · Investment amount: KRW 1.9 billion
- · Generation capacity: 2.4 MW



GHG reduction effect Approx 1.400 tons/year

Building 1 rooftop (Phase 2) (installed in 2024)

- · Investment amount: KRW 1.6 billion
- · Generation capacity: 2.0 MW



GHG reduction effect Approx 1,000 tons/year

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Sustainable product manufacturing

Adoption of sustainable feedstocks and transition to a circular economy | The Chemical Division is exploring business models aligned with the circular economy to support sustainable growth and circular economy. The division has promoted the commercialization of bio-attributed PVC and EVA using biomass-based feedstocks. In addition, it contributes to a circular economy by expanding the production of rPE (recycled Polyethylene) products made from recycled materials. S Development of Sustainable Products and Technologies

Product-level carbon emissions management using Life Cycle Assessment (LCA) | LCA is a methodology that quantifies and evaluates the environmental impacts of a product throughout its entire life cycle—from raw material extraction and processing to manufacturing, transportation, use, and disposal.

Hanwha Solutions uses carbon footprint data derived from LCA to enhance our understanding of direct and indirect greenhouse gas emissions generated throughout the product life cycle. We analyze these results to identify key emission sources and explore potential reduction strategies. In addition, by securing productspecific carbon footprint information, we are responding to increasingly stringent global regulations on product environmental disclosures and meeting evolving consumer expectations.

In 2023, the Chemical Division developed an in-house LCA a tool designed to analyze environmental impacts from raw material extraction to manufacturing (cradle-to-gate), using seven environmental impact categories including carbon footprint—aligned with the Environmental Product Declaration (EPD) framework. Using this tool, the division completed life cycle assessments for 202 products. To enhance the credibility of LCA results, third-party verification of the LCA was conducted in 2024 for rPE products.

Environmental and LCA-related certifications | Hanwha Solutions is committed to obtaining environmental and LCA-related certifications to assess the environmental impacts of our products. We aim to further expand such certifications to provide customers with environmental information about our products.

Status of Certifications

Category	Certificate Authority	Certified product group	Year of acquisition	Validity	Remarks
EPEAT (Electronic Product Environmental Assessment Tool), an environmental certification for electronic products	Global Electronics Council	3 module types from Q.TRON and Q.PEAK DUO series	February 2024 (1 product) May 2024 (2 products)	-	-
Product Safety Certification for Energy Conversion and Storage System	UL (Underwriters Laboratories Inc.)	Inverter (power conversion system) ESS (Energy Storage System)	2024	-	Certified products to be launched in the first half of 2025
Environmental Product Declaration (EPD)	Korea Environmental Industry & Technology Institute	Caustic soda, chlorine, PVC, plasticizers, W&C (Wire and Cable)	2024 (5 products)	3 years	New or renewed certifications for 13 products underway in 2025

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ESG

TCFD Climate Change Response and Net Zero



Engagement

Monitoring and engagement on climate-related regulations | Hanwha Solutions monitors domestic and international regulations and legislation that may apply to the company in a timely manner by identifying their implementation timelines, requirements, and potential impacts. Regulatory monitoring is conducted regularly in accordance with the company-wide risk management standard and, when necessary is carried out on an ad hoc basis.

Hanwha Solutions analyzes the potential impact of domestic greenhouse gas emissionrelated legislation—such as the Framework Act on Carbon Neutrality and Green Growth for Coping with Climate Crisis and the Emissions Trading Schemeon the company's business strategy. We also monitor domestic energyrelated laws and policies, including the Basic Plan of Long-term Electricity Supply and Demand and Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy, to support our efforts to secure renewable electricity and implement our Net Zero roadmap. In addition, Hanwha Solutions provides opinions to promote Net Zero and the expansion of renewable energy. To maintain export competitiveness, we also closely monitor carbon border tax regulations, such as the EU's Carbon Border Adjustment Mechanism (CBAM) and the U.S. Clean Competition Act (CCA), and assess the potential impacts of these regulations on our operations. In addition, we seek to strengthen our responsiveness by staying informed on a broad range of climate-related regulations, including mandatory ESG disclosures both in Korea and abroad, as well as the draft of the Global Plastic Treaty.

Participation in climate-related council | To effectively respond to climate-related regulations, Hanwha Solutions not only undertake internal initiatives but also take part in industry and publicprivate councils, as well as voluntary private-sector councils. By attending conferences and seminars hosted by these climate-related councils, we engage in discussions on practical pathways toward Net Zero and enhance our understanding of climate change response trends across the industry and the broader business community. In addition, Hanwha Solutions participates in indirect engagement activities through such councils, aiming to help shape climate change regulations in a way that considers the specific characteristics of the petrochemical industry. In 2024, the Chemical Division joined the Carbon Free Alliance, led by the Ministry of Trade, Industry and Energy, to discuss the implementation of the Carbon Free Energy (CFE) program. The division also participates in the climate change response group of the Korea Chemical Industry Association, contributing feedback on climate-related regulations to respond to the climate change. Furthermore, the division is strengthening its ability to respond to the climate adaptation through participation in industry workshops and aimed at enhancing the industry's ability to respond to the climate crisis, organized by the Korea Adaptation Center for Climate Change(KACCC) and the Korea Energy Agency.

In September 2024, the **Qcells Division** participated in an expert working group meeting on the Emissions Trading Scheme (ETS) guidelines and offered input to the system for developing sector-specific emission factors in the electronics industry.

Net Zero Council (value chain engagement) | The Chemical Division has launched a Net Zero Council in collaboration with key suppliers to build a more sustainable supply chain. Through close cooperation with member suppliers, the division promotes engagement, including efforts to reduce greenhouse gas emissions across value chain. In 2024, updates on the petrochemical industry's progress toward Net Zero and related reduction measures are shared through the council.

Voluntary climate-related disclosures | Hanwha Solutions | discloses information on climate-related risks, opportunities, and our response strategies and progress through the TCFD section of our sustainability report. In 2024, we also participated in the CDP disclosure. In addition, we provide our climate-related information for domestic and international stakeholders through environmental information disclosure system(ENV-INFO system) administered by the Ministry of Environment

TCFD Section of The Sustainability Report (2023-2025)







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TCFD Climate Change Response and Net Zero

Climate-related Risk Management Processes and Policies

Hanwha Solutions integrates climate-related risks into our company-wide risk management process and identify climate-related risks and opportunities by considering our business structure and the characteristics of each division. To support this effort, we have established a pool of climate-related risk and opportunity factors, based on the TCFD recommendations, industry-based guidance on implementing IFRS S2 implementation, scenario analysis results, and various stakeholders. In line with the TCFD framework, each risk and opportunity factor is categorized into physical risks (acute and chronic), transition risks (policy, reputation, market, and technology), and opportunities (energy sources, products and services, markets, etc.).

Identification and assessment process for climate-related risks

Risk identification

- Conducting analysis of key internal and external climate-related issues and physical/transition scenarios
- Having relevant departments screen the initially identified risks and identify additional risks as needed

- Evaluating the likelihood of occurrence and potential impact of risks (including strategic significance, urgency, and business implications)
- Determining the overall risk rating based on the assessment results

- Developing action plans and strategies for all identified risk factors
- Determining the level of response based on the risk rating and implementing corresponding measures

• Reporting and monitoring key climate-related risks through the Board of Directors and the ESG Committee.

S Company-wide risk management system

Risk identification: Deriving a pool of issues for identifying climaterelated risks | Hanwha Solutions analyzes various scenarios to identify climate-related risks. Physical risks are identified using climate scenarios ranging from high-emissions (SSP5) to low-emissions (SSP1) scenarios. Transition risks are also analyzed using scenarios such as Stated Policies Scenario, Announced Pledges Scenario, and Net Zero Emissions by 2050 Scenario. We identify relevant issues by considering trends in domestic and international climate change policies and regulations, global initiatives, and key stakeholders, and each relevant department conducts a preliminary screening of primary risk factors.

Risk assessment: Assessing the likelihood and impact of climaterelated risks, and determining the overall risk rating | In 2024. identified risks are evaluated on a 5-point scale based on their likelihood and risk impact. Risk impact was evaluated using the mode of three criteria-strategic importance, urgency, and management impactand the average was used when no mode was available. Based on the assessed likelihood and impact, risks were assigned to one of four overall levels: Level I, Level II, Level III, or No level. Starting in 2024, risk levels have also been evaluated in a more granular manner across short-, medium-, and long-term time horizons.

Risk response: Developing and implementing action plans | Hanwha Solutions develops and implements action plans for all climaterelated risks that have been identified and assessed, in order to mitigate the impacts of climate change.

Risk monitoring: Monitoring climate-related risks | Hanwha Solutions monitors climate-related risks in accordance with our company-wide risk management system. Key company-wide risks, including climate change, are reported to the Board of Directors once a year. In addition, climate-related risks and opportunities are reported separately to the ESG Committee twice a year to ensure company-wide level oversiaht.

Prioritizing climate-related risks | Among company-wide risks, climate-related risks are assessed by time horizon—short-, medium-, and long-term. Climate-related risks that are classified as Level I from a long-term perspective are given management priority. Action plans and outcomes related to these climate risks are reported to the ESG Committee under the Board of Directors, ensuring stronger oversight within an enhanced governance framework.

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TCFD Climate Change Response and Net Zero

Climate-related Metrics and Targets

Climate-related Metrics

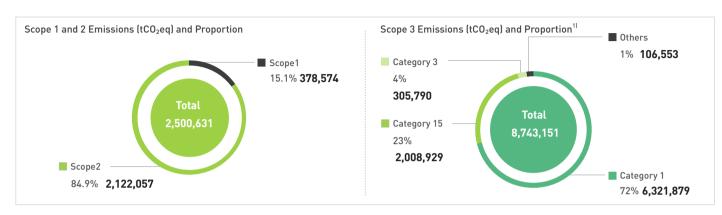
Scope 1 and 2 emissions | Hanwha Solutions calculates Scope 1 and 2 emissions based on the measurement approach, inputs, and other requirements specified in the Korea Emissions Trading Scheme (K-ETS) guidelines. The calculated data is verified annually by a third-party organization.

Scope 3 emissions | Hanwha Solutions considers Category 1 (Purchased goods and services) and Category 15 (Investments) as our key categories among all Scope 3 categories.

When calculating emissions by category, emission factors derived from primary data provided by suppliers or secondary data from sources such as national LCI databases or Ecoinvent were utilized.

In cases where emission factor matching was difficult, emission factors of similar materials or conservatively high emission factors were used as substitutes. To enhance the accuracy of emissions calculations, appropriate methodologies were applied for each category, taking into account business relevance, emissions contribution, and data availability. S ESG FACTBOOK

Internal carbon pricing | The Chemical Division estimates the financial effects of greenhouse gas (GHG) reduction when assessing effect of capitalization and reflects it in decision-making. The anticipated financial effects of GHG reduction are calculated by multiplying the expected emissions reduction resulting from replacing existing facilities with new ones by the internal carbon unit price.



Calculation method and Inputs by Scope 3 Category

Scope 3 Categories ²⁾	Emissions (tCO ₂ eq)	Calculation method	Inputs (activity data)
1. Purchased goods and services ³	6,321,879	Supplier-specific and average-data methods	Volume of purchased key raw materials
2. Capital goods	24	Supplier-specific and average-data methods	Quantity of purchased durable goods (e.g., electronic devices)
3. Fuel- and energy-related activities	305,790	Average-data method	Usage of purchased electricity and fuel
4. Upstream transportation and distribution ³⁾	78,113	Distance-based and fuel-based methods	Volume of raw material transportation and outbound freight with paid shipping costs
5. Waste generated in operations	15,341	Waste-type-specific-method	Amount of discharged waste, disposal method, waste type
6. Business travel ³	3,415	Average data method	Number of business trips, mode of transport, distance traveled, and statistics on fuel efficiency by type of vehicle
7. Employee commuting ^{3]}	6,320	Average data method	Commuting stats by transport type, number of working days, number of employees, and statistics on fuel efficiency by type of vehicle
9. Downstream transportation and distribution ³⁾	147	Distance based method	Outbound freight volume with unpaid shipping costs
12. End-of-life treatment of sold products ⁴⁾	3,121	Waste-type specific method	Amount of packaging material input used in packaging of sold products, materials used in packaging
13. Downstream leased assets	72	Asset-specific method	Amount of electricity use of downstream leased assets
15. Investments	2,008,929	Investment-specific and average-data methods	Scope 1&2 emissions of investees, share of equity, investee company's total revenue, and investee's business sector

- 1) The figures represent the combined total of the Chemical and Qcells Divisions. The Insight Division was excluded from the calculation due to its negligible share of emissions.
- 2) Category 11 Direct emissions and Category 14 emission are zero. Categories 8 and 10 were excluded from the calculation.
- 3) Key changes from the previous year: (Category 1) Update on emission factors for major raw materials, and exclusion of biogenic CO₂ from purchased feedstock. [Category 4 & 9] Volumes of which freight charges have not been paid among the outbound transportation and distribution emissions are under Category 9, while the remaining volumes are accounted for under Category 4. [Category 6] For the Chemical Division, emissions were calculated using the previous year's emissions and the number of business trips. (Category 7) Based on survey results from previous years.
- 4] For Category 12, the Chemical Division calculated emissions from the disposal of packaging materials used in products, in accordance with the GHG Protocol, since it is difficult to determine the disposal methods of sold products as a nature of being an intermediate goods manufacturer. The Qcells Division also calculated emissions from the disposal of packaging materials.

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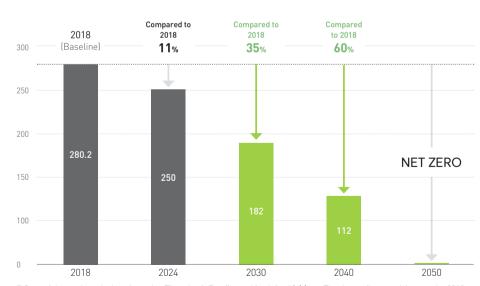
TCFD Climate Change Response and Net Zero

Climate-related Targets

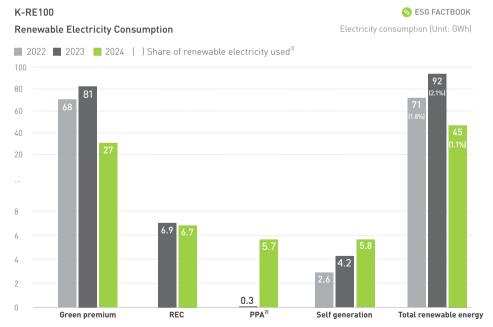
Hanwha Solutions has established targets to achieve Net Zero by 2050 and to join K-RE100 as part of our response to climate change. The greenhouse gas (GHG) emissions target is an absolute target aligned with the Paris Agreement and Korea's national carbon neutrality goals, with the aim of reaching net-zero emissions by 2050. In 2024, we achieved approximately an 11% reduction in emissions compared to the base year. In addition, Hanwha Solutions is working to realize our K-RE100 target by introducing renewable energy, aiming to source 100% of our electricity from renewables by 2050. In 2024, we carried out GHG reduction initiatives that resulted in a GHG reduction of approximately 23,000 tons per year through energy efficiency improvements, fuel switching, and the adoption of renewable energy. We used approximately 45 GWh of renewable electricity, accounting for 1.1% of our total electricity consumption. While the share of renewable energy remains low, the amount of direct PPA increased by approximately 5.5 GWh compared to that of previous year, and on-site renewable energy self-generation also increased by 1.6 GWh, in an effort to secure high-quality renewable energy sources. In addition, to enhance the systematic management of climate-related targets, Hanwha Solutions reports the progress and performance of our GHG reduction targets to the CEO and the ESG Committee. The amount of renewable energy procured is also regularly reported to the ESG Committee to ensure company-wide monitoring. Going forward, we will continue to carry out activities and management to achieve Net Zero and transition to renewable energy.



(Unit: 10,000 tCO2eq, reduction rate compared to base year (%))



 Sum of domestic emissions from the Chemical, Qcells, and Insight Divisions. The data reflects revisions to the 2018, 2030, and 2040 figures in the previous report, based on emissions for surrender of emissions permits.
 The emissions data covers six greenhouse gases: CO₂, CH₄, N₂O, HFCs, PFCs, SF₆.



2) PPA contract details: Capacity - 15 MW / Energy source - Solar / Applied sites - Ulsan Plants 2 and 3 / Partial supply began in December 2023 / Expected to supply approximately 19 GWh annually at full capacity.

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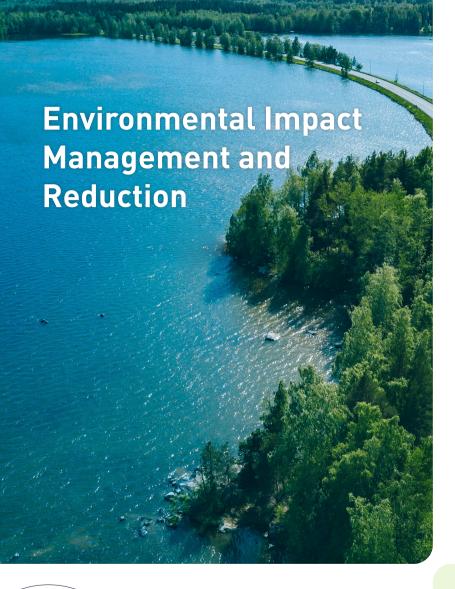
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³⁾ Renewable electricity usage ratio = Amount of renewable electricity used / Total electricity consumption



OUR STORY

"We respect nature for a more sustainable tomorrow."

Hanwha Solutions is committed to minimizing negative environmental impacts through systematic environmental management and continues to carry out these efforts as part of fulfilling our corporate social responsibility.

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Management and Reduction









Overview

In 2024, Hanwha Solutions identified environmental impact reduction and management as a material issue, following our 2024 double materiality assessment. Among the sub-topics, hazardous chemicals and air pollutants were identified as the most significant, followed by water resources and water pollutants, and waste management. These issues were selected through a comprehensive evaluation that took into account various external factors, such as the climate crisis, tightening environmental regulations, and community expectations, as well as the importance and impact of each issue.

Hanwha Solutions has established a management system to minimize potential negative impacts associated with each environmental issue and is assessing and managing related risks. In addition, we continue to take proactive measures based on quantitative performance indicators and implementation strategies.

Environmental Issues Prioritized by Hanwha Solutions



Air pollutants

Air pollution is one of the most significant environmental issues arising from production activities. Substances such as nitrogen oxides (NOx), sulfur oxides (SOx), and volatile organic compounds (VOCs) gives wide-ranging negative impacts, including air quality deterioration, adverse health effects, and climate change. In response, government regulations are becoming more stringent, and concerns over fine dust are increasing, especially within local communities. As a result, stricter management is required as part of corporate social responsibility.



Hazardous chemicals

Hazardous chemicals are high-risk substances that can lead into major incidents even from minor mishandling. Inadequate controls during handling, storage, or transportation may pose wide-ranging risks to employee safety, public health, and corporate reputation. Regulations on chemical registration and management are tightening across major global markets. In both Korea and abroad—under laws such as the Chemical Substances Control Act, the Act on the Registration and Evaluation of Chemical Substances, and the EU REACH regulation—these requirements directly affect product accessibility in the market.



Water resources and pollutants

Water is an essential resource for sustaining life, and the entire process—from water intake to wastewater discharge—has a direct impact on local ecosystems. Water pollution can result in contamination of rivers and groundwater, which may negatively affect local communities and our reputation.

With extreme weather events such as droughts and floods occurring more frequently, securing a stable supply of water has become increasingly challenging. As a result, using and reusing water more efficiently is emerging as a key priority for businesses.



Waste

Waste is a key indicator for assessing a company's resource efficiency and environmental sustainability. Industrial waste, in particular, involves multiple risks, such as rising treatment costs, limited landfill capacity, and increased carbon emissions. As the shift toward a circular economy accelerates, developing resource circulation systems that prioritize recycling and reuse is becoming an important driver of corporate competitiveness.

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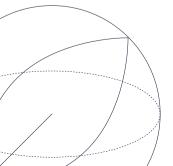
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To promote environmental management, Hanwha Solutions has built a company-wide governance system that reinforces decision-making across the organization.

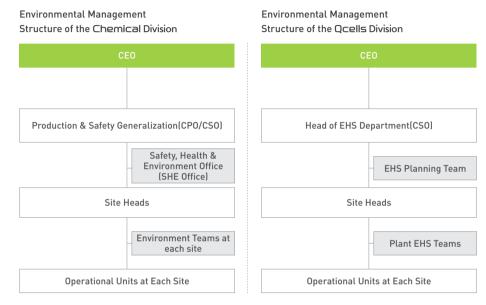
Board of Directors and ESG Committee | Hanwha Solutions' ESG Committee oversees and manages the implementation of key environmental management initiatives. The committee is authorized and has responsibility for reviewing and deliberating on our goals for reducing environmental impact and detailed action plans, including those related to waste, water use, and wastewater, as set out in the committee's quidelines. The Board of Directors annually approves our safety, health, and environment (SHE) performance and plans, including key environmental performance and implementation matters such as air emissions, water use and wastewater, and waste management, On February 22, 2024, the Board passed a resolution approving the 'Safety, Health & Environment Plan of 2024'

Role of Management | The CEO of Hanwha Solutions' Chemical Division holds overall responsibility for environmental management. The Head of EHS Department (CSO) and Site Heads of the Qcells Division receive monthly reports on environmental targets and performance, which they monitor and manage accordingly.

Performance-based Compensation | Hanwha Solutions integrates environmental performance into our compensation system to ensure that key decision-makers are held responsible for implementing environmental management.

In the **Chemical Division**, the KPIs of executives and site heads incorporate the achievement rates of targets for pollutants—such as air emissions, water use, and waste disposal—as well as records of regulatory violations and improvement rates following environmental inspections.

In the Qcells Division, the KPIs of the Head of EHS Department(CSO), Site Heads, and the head of the plant EHS team include performance in improving outcomes from environmental, health, and safety inspections.



Environmental management implementation organization | In the Chemical Division of Hanwha Solutions, comprehensive environmental management is centered around the Safety, Health & Environment Office, under the Production & Safety Generalization(CPO/CSO). The office is responsible for planning and managing company-wide environmental initiatives, conducting environmental analysis and assessments across domestic and overseas sites, and monitoring and responding to regulatory changes. In addition, environment teams and operational units have been established at each site to implement site-level environmental

In the Qcells Division, environmental management activities are led by the Head of EHS Department (CSO), who oversees the establishment of environmental policies and regulations, inspection, analysis, assessment of environmental facilities and improvement in environmental performance. Each plant has an Environmental, Health & Safety (EHS) department as the operational unit, and EHS personnel are designated within relevant departments to support a coordinated and systematic approach to minimizing environmental impact.

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Identification and Assessment of Environmental Risks

Hanwha Solutions identifies environmental risks across our business divisions in accordance with the company-wide risk management process. Risks are graded based on the likelihood of occurrence and potential impact. For each identified risk, we establish, implement, and manage appropriate response plans.

Category	Division	Risk Factors	Risk level*		Response strategies and action taken in 2024
Common		Legal risks due to non-compliance with environmental regulations	L	Strengthening environmental compliance	- Identified additional risks through cross-site inspections - Developed improvement plans after departmental review of the additional risks
	Chemical	Risk of environmental accidents (e.g., major incidents such as long- term shutdowns or operational suspensions)	III	Strengthening environmental compliance	Carried out accident prevention activities at each site and distributed Safety, Health & Environment (SHE) plans Prevented leakage accidents through ongoing monitoring Prevented incidents through incident monitoring and cross-site sharing of incident learnings
		Compliance and implementation risk related to integrated environmental permit conditions (non-compliance risk)	III	Strengthening environmental compliance	 Capitalized the installation of dust boxes and the connection of the RTO system Regularly submitted internal improvement plans for turnaround maintenance activities involving potential risks (e.g., decoking, curing)
	Ocolle	Administrative sanctions due to missing environmental and safety permits	L	Structured system operation	- Reviewed and approved preliminary environmental and safety assessments (22 cases completed in 2024)
Qcells		Risk of administrative sanctions for non-compliant or unpermitted facilities under the integrated environmental permit system	L	Structured system operation	- Upgraded pollution control facilities to comply with the Integrated Environmental Permit reg- ulations and acquired the permit in 2024
Air pollutants	Chemical	Tightened air pollutant emission limits and exceeding allocated allowances in 2025	L	Minimizing environmental impact	 Conducted continuous monitoring of changes to air emission standards Developing an emission management strategy, including permitting responses and facility improvements
	Qcells	Tightened air pollutant emission limits (non-compliance risk)	L	Achieving environmental and energy optimization	 Monitored the status of air pollutant emissions and implemented immediate response measures Provided training on roles and responsibilities for TMS emergency response duties; and conducted regular inspections and improvements of emission and control facilities subject to TMS installation
Hazardous chemicals		Compliance with revised notification under the Chemical Control Act	III	Strengthening environmental compliance	Completed consulting and developed improvement plans in response to the notification on hazardous chemicals (TBPO/POD) Installed hazardous chemical signage Managed chemical handling records and conducted inspections of handling facilities
	Ch a sui aa l	Safety risk of hazardous chemical exposure during sample handling of reagents or product samples	L	Minimizing environmental impact	- Completed installation of approximately 80 closed-loop type samplers
	Chemical	Stricter requirements for immediate reporting of chemical accidents (non-compliance risk)	III	 Strengthening environmental compliance 	- Distributed training materials and completed training on immediate accident reporting
	\	Environmental and safety risks associated with tank damage	L	 Minimizing environmental impact 	- Eliminated environmental and safety risks and ensured equipment stability
٥		Compliance checks related to the implementation of Risk Management Plans (non-compliance risk)	L	 Strengthening environmental compliance 	- Completed pre-inspection preparations
Water resources / water pollutants	Chemical	Potential exceedance of legal discharge limits due to reduced aeration tank performance in water treatment processes	L	 Minimizing environmental impact 	- Conducted verification of bioamplifier effectiveness
Qcells		Increased wastewater discharge volume due to facility expansion	L	Achieving environmental and energy optimization	- Managed wastewater discharge volume through real-time effluent monitoring at the wastewater treatment plant
Circular resources / waste	Chemical	Changing consumer behavior - growing demand for recyclable, eco-friendly, and low-carbon materials	II	Building an eco-friendly management system	 Continued to monitor and respond to changes in consumer behavior Continued to promote risk response measures - including expanded recycling, development of eco-friendly products, increased REC adoption, and CCU application - through a mid- to long-term approach

^{*} L [No level]: This refers to risks that were assessed as having relatively low likelihood and impact during the company-wide risk evaluation, and were therefore not assigned a rating. These risks are managed at the team level.

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Environmental Management System

Environmental management policy | Hanwha Solutions has established environmental management quidelines and is promoting a range of initiatives based on these principles.

Environmental Management Action Guidelines

General Principle

- Actively participate in environmental management activities to achieve Net Zero and create eco-friendly workplaces.
- Promote the development of environmentally friendly products and services while advancing resource circularity to support sustainable growth.
- Comply with all applicable environmental laws and regulations, and strive to reduce greenhouse gas emissions, improve energy efficiency, and minimize pollutant discharge.
- Engage in activities that restore natural ecosystems and conserve biodiversity to protect the environment of local communities.

Environmental management system | Hanwha Solutions' Chemical and Qcells Divisions have established environmental management systems based on ISO 14001, the international standard for environmental management, and apply them across their business sites. To maintain ISO 14001 certification and ensure alignment with global standards, we conduct regular internal and follow-up audits to review overall operations and drive continuous improvement. In addition, Hanwha Solutions implements environmental management activities in a systematic manner based on the four stages of the PDCA (Plan-Do-Check-Act) cycle. Through our environmental policy, we publicly declare our commitment, set specific targets and action plans, and evaluate progress and performance to achieve continuous improvement in environmental performances.

Division	ISO 14001 Certification Status	Initial Certification Date	Validity Period
	Yeosu Plants 1 & 2, TDI	January 16, 2011	January 9, 2024 – January 8, 2027
Chemical	Ulsan Plants 1, 2 & 3	August 29, 2011	August 26, 2024 – August 25, 2027
	R&D Center	October 6, 2022	October 6, 2022 – October 5, 2025
Qcells	Jincheon Site	August 25, 2016	August 25, 2024 – August 24, 2027

Digital-based environmental management system | Hanwha Solutions has established and operates digital systems to manage our environmental management activities in a systematic manner. These systems integrate environment, health, and safety processes, enabling more efficient and effective environmental management. The Chemical Division has built a comprehensive compliance system that digitalizes information on hazardous and

risk factors at sites, systemic training programs, safety regulations, and organizational structures—following their systematic review and reorganization. In 2024, the system was further enhanced by strengthening functions such as regulatory management to improve our reliability and effectiveness.

In 2024, the **Qcells Division** launched a new EHS Portal and a Chemical Management System (CMS) to respond more efficiently to various environmental regulations and to further advance its environmental impact management processes.

Key Environmental Tasks Managed through the Chemical Division's SHE Portal

- Managing government-related environmental affairs (e.g., air, water, and waste); conducting real-time emissions monitoring; and tracking emissions status
- 2 Monitoring and responding to chemical regulations and policy requirements
- ③ Managing chemical handling information across sites, including inventories, procurement and import records, and Material Safety Data Sheet (MSDS) preparation

Key Environmental Tasks Managed through the Qcells Division's EHS Portal

- ① Monitoring of air and water quality and monthly waste discharge management
- ② Management of personnel participating in chemical safety training (e.g., handlers and related workers)
- (3) Management of substances handled at the site, including chemical handling information, procurement, and import

Participation in the corporate environmental policy council | The Chemical Division actively participated in the Corporate Environmental Policy Council, a standing consultative body co-hosted twice a year by the Ministry of Environment and the Korea Chamber of Commerce and Industry. In the first and second halves of 2024, the division voiced its opinions across a wide range of areas, including water reuse, air, greenhouse gases, chemicals, and integrated environmental management. In the first half of the year, the division proposed several improvements to relevant systems. These included the nationwide expansion of the public-private consultative body for water reuse, the relaxation of criteria for contract amendments in self-monitoring, and the expansion of the scope of business sites subject to voluntary self-assessment under the integrated environmental permit system. The division also suggested adjusting the permissible noise emission standards in industrial areas and excluding indirect emissions from regulatory obligations under the Emissions Trading Scheme. In the second half, the division voiced its opinions for the development of separate standards for facilities using eco-friendly fuels, the clarification of management standards for fugitive emission control facilities such as wastewater treatment systems, and the adjustment of the implementation timeline for the newly introduced cancellation criteria for emissions allowance allocations. Through these efforts, the Chemical Division helped ensure that the voices of businesses were reflected in environmental policymaking, leading to the partial acceptance of some proposals or designation of others for mid- to long-term review.

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Environmental Management Strategy

The Chemical Division has established three strategic directions to minimize environmental management risks and reduce environmental impact. The division is working to build an eco-friendly management system and enhance the implementation of environmental management practices based on this foundation. In addition, the division has established detailed strategies and targets to minimize environmental impact and is promoting enhanced compliance activities to reduce risks related to environmental regulations. The Qcells Division is implementing key initiatives in line with its mid- to long-term EHS (Environment, Health & Safety) goals and strategies. These include identifying potential environmental management risks, minimizing pollutant emissions, managing environmental accident risks, and strengthening accountability at the production line level.

Waste

disposal

volume

▼21%

(based on intensity)

Environmental Management Strategy of Hanwha Solutions Chemical Division

VISION Nature-Positive Worksites that coexist with nature MISSION Becoming a global leader in environmental management through eco-friendly practices that protect the planet Strategic initiatives Advancing the environmental Reducing pollutant emissions and improving management framework resource efficiency • Reduce greenhouse gas and air pollutant emissions . Establish mid- to long-term environmental management strategies · Lower water consumption Expand environmental management across the · Reduce waste disposal volume entire value chain Build a response system for the circular economy Develop a management framework based on environmental LCA (Life Cycle Assessment) Eco-friendly initiatives and certification acquisition Laying the foundation for promoting biodiversity TNFD, Zero Waste to Landfill (ZWTL), ISO 50001 Establish an assessment system for impacts on nature, including biodiversity · Develop and implement conservation measures Target Improve ESG rating Improvement of key environmental indicators at (KCGS - Environmental category) business sites · Improve ESG rating (KCGS - Environmental category) Greenhouse | Air pollutant | Water emissions consumption Current rating: A → Target rating: S by 2030 qas emissions ▼13% **▼**40% **▼**21% * 2030 target compared to 2024 performance

Hanwha Solutions Ocells Division

Broadening the scope of chemical risk assessment

Domestic and international chemical registration

Registration and Evaluation of Chemical Substances

(K-REACH) and the Consumer Chemical Products

. (Overseas) Country-specific chemical registration

Building a digital based autonomous

environmental management system

· Establish a follow-up management system for inte-

Develop and implement voluntary environmental

· Build an AI/ML-based environmental management

Chemical substance risk assessment rate

(registration / hazard assessment)

64%

* Substances subject to registration under

K-REACH: 171 substances (as of March 2025)

2030

100%

. (Korea) Registration under the Act on the

and Biocides Safety Control Act

and DEHCH FCM certification

grated environmental permits

initiatives at the team level

30%

VISION Create world-class safe and sustainable workplaces Strategic initiatives Strengthen self-regulated prevention activities (e.g., ad-hoc risk assessments, management of top 5 risks) · Promote identification of potential hazards Build a healthier workplace environment . Establish stable operation of facilities in accordance with the Clean Air Conservation Act · Minimize pollutant emissions . Respond to energy and climate change issues · Manage environmental accident risks · Advance EHS system operations · Enhance process safety management Proactively respond to regulatory changes such as establishment and amendments · Strengthen ownership through production line accountability

Environmental Management Strategy of

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Air Pollutant Management

Air Pollutant Management System

The **Chemical Division** has transitioned all its sites with an integrated environmental permit and is operating an autonomous environmental management system. Through annual environmental inspections, the division has continuously improved environmental risks. Beginning in 2025, it is introducing a "Company-wide Environmental Inspection Enhancement Plan" to establish a more advanced internally managed environmental system. As part of this plan, the division conducts audits to assess the level of environmental management at each site and carry out autonomous environmental inspections, taking into account site-specific characteristics. The audits evaluate pollutant emission levels, the on-site application of appropriate environmental management practices, legal violations and environmental incidents, and the status of measurement and monitoring. These evaluations aim to continuously enhance and develop the environmental management system. The improved inspection process is intended to strengthen the division's ability to consider site-specific characteristics and enhance inspection capabilities. In addition, any nonconformities and corrective actions are to be registered and managed through the SHE Portal, and inspection results will be reported, supporting a more robust monitoring system.

Management of air pollutant emission standards | The Chemical Division has set its air pollutant emission standards at levels within 30% of the legal limits. To strengthen close oversight of air pollution-related facility operations, the division conducts in-house measurements at emission outlets. In line with the 3rd Comprehensive Air Quality Improvement Plan, it has established and is implementing emission reduction targets for major facilities, Additionally, in response to the 2nd Phase of the Air Emission Cap-and-Trade System, the division has been working with environmental consulting firms since 2024 to explore site-specific emission optimization strategies and review emission quotas. These efforts aim to establish a more effective and practical air pollutant management system.

The Qcells Division manages air pollutants based on internal standards that are more stringent than legally mandated emission limits. Major facilities are equipped with TMS (Tele-Monitoring Systems) that continuously measure and monitor emission concentrations from stacks. The system is designed to issue alerts when pollutant concentrations exceed internal thresholds, enabling prompt response and control. In 2025, the division plans to further strengthen its air pollutant management system by installing three additional TMS units. It is also continuing to carry out internal inspections, improvement initiatives, and investments in air pollution control facilities. In particular, the division is implementing various strategies, including replacing substances that generate nitrogen oxide (NOx)—based on detailed analysis of raw materials used in the production process—and improving the efficiency of treatment facilities.

Air Pollutant Management and Reduction Activities

Company-wide environmental inspection | In 2024, the Chemical Division conducted a company-wide environmental inspection covering the management status of air, water, waste, chemicals, and soil, as well as any violations of environmental regulations. The division fully implemented all corrective actions for all identified nonconformities. In addition, based on an analysis of inspection results from 2021 to 2024, improvement measures were established. The division also reviewed implementation plans for how environmental audits will be carried out starting in 2025.

Air pollutant reduction efforts I The Chemical Division is committed to reducing air pollutant emissions through various initiatives. These include the installation of a De-NOx system for the hydrogen boiler at the Yeosu CA plant; the reduction of NOx emissions by optimizing oxygen injection in the VCM cracking furnace in Ulsan: and a decrease in Thermal-NOx emissions through optimized heat supply to the DOTP reactor at the Ulsan plasticizer plant, resulting in reduced LPG consumption. In addition, in 2024, the division completed improvements and upgrades to legal compliance management, in-house air pollutant monitoring, and total air pollutant emissions management functions, as identified in the SHE Portal operational review. It also began reviewing emission optimization strategies with support from external consulting firms, and plans to complete the application and obtain approval for total emission quota allocations within 2025.

The Qcells Division operates air pollution control facilities to remove pollutants generated from production processes. Since 2024, the division has been introducing De-NOx Systems at major facilities to reduce fine dust and nitrogen oxides and is working to expand these efforts to other facilities to further reduce emissions. In 2025, an ozone generator will be additionally installed to enhance nitrogen oxide reduction.

The **Insight** Division is also working to minimize fugitive dust emissions by installing wheel washers at construction sites and requiring the use of covers on construction equipment when transporting soil and aggregate.

In June 2024, the Yeosu plant of Hanwha **Solutions** was awarded a commendation by the Minister of Environment at a workshop for air pollutant management agencies, in recognition of its efforts to implement investments in air pollutant reduction facilities and to

advance and diversify the operation of its CleanSYS system.



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Hazardous Chemical Management

Hazardous Chemical Management System

Regulatory response system | Hanwha Solutions operates a regulatory response system based on the life cycle of chemical substances. We regularly review domestic and international chemical regulations and conduct periodic inspections of chemical use, transport, and storage processes to ensure the safety of handling facilities.

The **Chemical Division** received its first official approval of a chemical accident prevention and management plan in February 2023 and has since conducted annual internal inspections to manage hazardous chemicals. In addition, the division proactively responds to chemical regulations such as the Act on the Registration and Evaluation, etc. of Chemical Substances (K-REACH), the Chemical Substances Control Act the Biocidal Products Control Act, and EU REACH to ensure the safety of all stakeholders

MSDS-based management system | Hanwha Solutions has independently developed an advanced, MSDS-based integrated chemical management system. This system maintains a centralized database of all chemical substances handled at each site. It supports effective management by collecting and reporting data on hazardous chemicals, including usage records and how they are being managed at each plant.

Chemical risk assessment | Hanwha Solutions conducts chemical risk for all substances we handle by applying the CHARM (Chemical Hazard Risk Management) methodology. Based on the results of these assessments, we establish improvement measures and implements corresponding actions. S Company-wide chemical risk assessment

Hazardous chemical management activities

The Chemical Division completed the installation of approximately 80 Closed Loop Type Samplers in 2024 to prevent exposure to hazardous chemicals and ensure safe sample collection. The division also updated its integrated chemical management system database to enhance its capacity to respond proactively to evolving chemical regulations.

The Qcells Division continues to conduct lab testing to improve its processes and equipment. In particular, the Jincheon plant is actively developing new recipes aimed at reducing the input volume of hazardous chemicals used in production. In 2024, recipe improvements led to a 6% year-over-year reduction in hazardous chemical use per unit of product in specific processes.

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Environmental Impact Management and Reduction

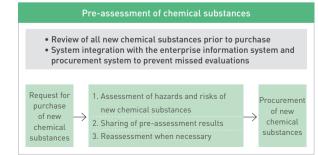












Compliance-driven

chemical management

MSDS implementation

Chemical usage

reporting

The Yeosu plant of Hanwha Solutions received a commendation from the Yeongsan River Basin Environmental Office in 2024 in recognition of its efforts to reduce emissions and implement pollutant reduction activities. These efforts have contributed to minimizing pollutant discharge and to establishing an autonomous environmental management



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Water Resources and Water Pollutant Management

Water Resources and Water Pollutant Management System

Hanwha Solutions monitors daily intake, usage, and discharge volumes using flow meters and record the data on a daily basis. This allows us to track and manage overall water consumption. Certain sites also utilize recycled water. All wastewater generated at each site is treated entirely through third-party treatment facilities, and at major sites, primary or secondary treatment is conducted in-house before the wastewater is transferred to the external facilities.

The Chemical Division has established management targets for water pollutants at 30-50% of the legal discharge limits. In accordance with the self-monitoring cycle required under the integrated environmental permit system, each site conducts monitoring and analysis either in-house or through external service providers. The division monitors the discharge levels of key water pollutants such as TOC, BOD, and SS, and sets reduction targets accordingly.

The Qcells Division has also established internal management standards for key water pollutants that are stricter than the legally permitted discharge limits—approximately 50% of the regulatory thresholds for each substance—and continuously monitors compliance with these standards.

To prevent the release of harmful substances through the final wastewater discharge outlet, the division has installed CCTV and conducts continuous monitoring to maintain pollutant concentrations within legal limits.

Starting in 2025, the Jincheon site has been newly designated as a facility subject to the Integrated Environmental Permit system and is managed in accordance with the self-monitoring frequency requirements

Hanwha Solutions is also working to enhance our water resources and water quality management system by analyzing water use, wastewater treatment, and pollutant control practices to identify effective reduction measures.

Key Strategic Initiatives for Water Resources and Water Pollutant Management at Hanwha Solutions



Water Resources and Water Pollutant Management and Reduction Activities

Reduction of water use and wastewater generation | The Chemical Division is reducing water use and wastewater generation by implementing measures such as installing pollution control equipment (e.g., scrubbers) for emission sources that operate during working hours or on an intermittent basis. Water usage and blower operation are also shut down after hours to further reduce consumption.

The Insight Division is also working to reduce water consumption by reusing water purified at its own wastewater treatment facility. This treated water is reused instead of surface water at its Jade Garden (botanical garden) and Jade Palace GC(a golf club) located in Chuncheon.

Water reuse assessment at business sites | In 2023, the Chemical Division collaborated with a specialized consulting firm to assess the potential for water reuse across all sites. This included water quality analysis of wastewater, cooling tower blowdown, and discharged water by process. The assessment estimated that approximately 480,000 tons per year of water could be reused at three economically viable sites, out of a total of approximately 2.61 million tons per year across all sites. Based on the assessment results, the division established reuse targets and a mid- to long-term roadmap for water resource management.

Hanwha Solutions is committed to addressing water scarcity and improving water guality by 2030 through continued efforts to reduce pollutant discharge and promote resource efficiency. To this end, we are pursuing goals, including reducing pollution, eliminating illegal dumping, minimizing the release of hazardous chemicals and wastewater, reducing the proportion of untreated wastewater by 50%, and expanding water recycling and safe reuse. Additionally, Hanwha Solutions has proposed financial support for relevant policy review departments to enhance water use efficiency across all divisions and establish a sustainable drinking water supply system.





Monitoring of wastewater characteristics by site



Improvement of wastewater treatment facility equipment



Monitoring of hazardous substance concentrations in water



Establishment of a real-time analysis system for water pollutant discharges

Setting

water quality

management

targets

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Water Resource and Water Pollutant Management and Reduction Activities

Response to CDP Water Security | Hanwha Solutions used the SSP3 scenario from the WRI Aqueduct Tool to assess projected water stress levels in 2030. The results indicated that the Yeosu site of the Chemical Division and the Jincheon site of the Qcells Division are located in areas classified as High, while the Ulsan site of the Chemical Division falls within a Medium-High water stress area. Based on this analysis, Hanwha Solutions confirmed that water supply risks could have a potentially significant impact on our business resilience.

Hanwha Solutions is reviewing the technical and economic feasibility of investing in water recycling facilities with advice from specialized institutions, in preparation for potential risks. Hanwha Solutions also aims to strengthen the monitoring and management of wastewater and pollutants, recognizing the interconnected impacts and dependencies associated with water use.

Financial Impacts of Water Stress at the Ulsan Site

Business impacts Financial impacts Response measures

- Ulsan frequently faces water shortages due to drought, and intake stress is high as industrial complexes have strong demand for industrial water.
- If water supply is interrupted due to increased intake stress, production and infrastructure facilities may be affected, leading to property loss and reduced sales revenue from operational shutdowns.
- Financial losses due to operational shutdowns caused by water supply disruptions: minimum KRW 4.1 billion [1 day] – maximum KRW 1.4797 trillion [1 year]
- Expansion of water reuse to address water supply disruption risks

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In 2024, the Ulsan Plant of **Hanwha Solutions** was awarded a commendation by the Nakdong River Basin Environmental Office for its contributions to water environment protection through improvements and monitoring of wastewater and non-point source discharge facilities. These efforts helped prevent the continuous inflow of pollutants into water bodies and identify areas for further improvement in discharge facilities.



Water pollutant management and reduction activities | The Chemical Division has reduced total phosphorus concentrations in river discharge by introducing a wastewater quality monitoring system and a low-phosphorus program for cooling tower blowdown water. The division also conducts monthly in-house water quality inspections, along with quarterly analyses and management of wastewater characteristics. In addition, it has improved the rainwater-wastewater separation system to reduce wastewater generation and minimize the risk of untreated wastewater leakage.

The Qcells Division has established a wastewater monitoring system that analyzes water pollutant concentrations daily at the discharge tank. The Division also operates in-house water quality analyzers to measure key indicators—such as pH, total phosphorus (T-P), total nitrogen (T-N), and suspended solids (SS)—from each process on a daily basis. Since 2022, the division has expanded its internal monitoring capabilities by installing additional TOC analyzers to track seven types of water pollutants. To further control pollutant concentrations, ongoing improvements have been made to the wastewater treatment facilities. In 2024, a chemical removal scraper was installed in the reaction tank, and a baffle was added to regulate flow in the chemical reaction tank—enhancing the overall treatment system at the Jincheon site. The division also plans to expand and upgrade the facilities to improve treatment efficiency for high-concentration wastewater and further reduce pollutant levels.

The Insight Division has installed temporary sedimentation basins and drainage channels to reduce water pollution caused by soil runoff. It has also established response measures for oil spills and stocked appropriate soil response materials such as oil absorbents.

Water Resource and Pollutant Management: Current Status and Planned Measures

	2024 status		Planned measures
Chemical	Upgraded of the pH control system Expanded oil skimmer capacity Installed stormwater detection and alarm system Improved process stormwater separation trench Upgraded the CTW Blow-down system	Chemical	Improvement of boil-out wastewater treatment method and modification of stormwater drain type Upgrade of aerator system in the aeration tank at the wastewater treatment facility
Qcells	Installed a scraper and baffles in the wastewater treatment facility to enhance chemical removal	Qcells	Upgrade the pH control system for the cooling tower Expand and improve the wastewater treatment facility to increase treatment efficiency for high-concentration wastewater

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Waste Management

Waste Management System

Hanwha Solutions is strengthening our waste reduction and recycling efforts to establish a circular resource system and reduce total waste generation.

The Chemical Division has developed initiatives, including building a circular economy response system, reducing waste disposal volume, and achieving zero waste to landfill under its environmental management strategy to minimize waste generated from the sites. It has set waste disposal intensity targets and is continuously reviewing and promoting the transition from landfilling and incineration to recycling.

The Qcells Division is committed to reducing waste generation across all stages of product manufacturing and processing. Waste intensity is monitored on a monthly basis, and waste is systematically separated to support reduction efforts. To diversify its circular resource initiatives, the division established a Recycle Business Team in 2024 and is working to develop a closed-loop recycling system for end-of-life solar modules.

Waste Management and Reduction Activities

The **Chemical Division** is continuously working to divert landfilled and incinerated waste to recycling. To reduce the volume of landfilled and incinerated waste—which accounts for 53% of its total waste—the division has conducted site-level assessments of waste generation and established reduction plans accordingly.

In response to the government-led Circular Economy Performance Management Program introduced in 2020, the Qcells Division has undertaken a range of initiatives, including upgrading production facilities, identifying alternatives to hazardous chemicals, and improving the moisture content of sludge.

The **Insight** Division, in compliance with the Waste Control Act, conducts waste management activities aimed at minimizing waste generation. These efforts include the management of waste wood, synthetic resins, scrap metal, and waste oil.

Zero Waste to Landfill (ZWTL) certification | The Chemical Division is reviewing the possibility of obtaining Zero Waste to Landfill (ZWTL) certification, based on its ongoing efforts to divert landfilled and incinerated waste to recycling. The division plans to obtain the certification, based on the outcomes of its waste reduction efforts.

Waste recycling and management | The Chemical Division plans to increase its recycling rate by utilizing wastewater sludge as a raw material for cement production and expanding the recycling of intermediate processed materials, while also promoting the recovery of thermal energy from key incinerated waste, such as hazardous waste. Through these efforts, the division aims to further increase the recycling of landfilled and incinerated waste, including process sludge. In 2024, the division identified and verified new external service providers capable of recycling waste organic solvents and waste oil—previously treated through incineration—by conducting on-site due diligence. It now plans to begin full-scale recycling treatment of these materials through the newly selected vendors, which is expected to reduce waste treatment costs and improve the recycling rate by approximately 1.1 percentage points.

The Qcells Division is faithfully implementing the Eco-Assurance System established by the Ministry of Environment to promote the recycling of endof-life solar modules. To ensure proper collection and recycling of distributed modules, the division has joined E-Circulation Governance, a recycling business cooperative, and entrusted it with the treatment process. The Division also pays annual recycling contributions in line with the national total recycling obligations announced each year. In September 2024, the division signed a memorandum of understanding (MOU) with Korea Zinc to collaborate on a solar panel recycling project aimed at building a resource circulation system. Through this partnership, Qcells Division is working to recover and recycle key materials—such as aluminum, copper, and silver from manufacturing waste generated during solar module production. Additionally, the division is reviewing a plan to recycle waste acid, which is currently treated through neutralization, with implementation targeted for 2025.

Investments in resource circulation | The Qcells Division of Hanwha Solutions established the Recycle Business Team in 2024 and founded a solar module recycling subsidiary, "EcoRecycle by Qcells", in the United States in 2025. This business focuses on collecting end-of-life solar modules and extracting valuable materials such as aluminum and silver—using in-house-developed high-purity separation technologies. These recovered materials are then recycled back into the solar module production process. The division is currently concentrating on building the necessary infrastructure with the goal of launching operations at its Georgia-based facility in the second half of 2025. Once operational, the facility is expected to recycle approximately 500,000 modules per year, which is anticipated to result in a substantial reduction in carbon emissions. Through this initiative, Qcells Division aims to contribute to resource circularity and further solidify its position as an eco-friendly manufacturer.

In November 2024, the Qcells Division participated in the E-Circulation School program—an educational initiative for youth organized by E-Circulation Governance to promote resource circulation. As part of the initiative, the division supported educational sessions on proper disposal methods for electronic waste, hands-on learning activities, and a campaign to collect used mobile phones and disused items. A total of 13.351 students from 98 schools across the country participated in the program.



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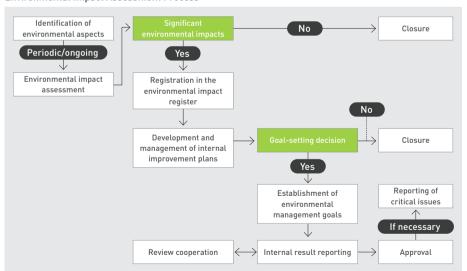




Environmental Impact Assessment

Hanwha Solutions has established internal Environmental Impact Assessment (EIA) quidelines based on factors such as regulatory applicability, frequency of occurrence, degree of environmental pollution, and environmental assessment criteria for products. Based on these guidelines, we conduct annual EIAs that take into account the activities of each process and business area. Each team aggregates the results of environmental aspects and the EIA scoring table to determine a final environmental impact grade. Based on this grade, significant environmental impacts are identified, registered in the internal environmental impact register, and followed by the development of appropriate improvement plans. The head of the Safety, Health & Environment (SHE) team reviews the validity of the objectives and detailed-objectives and provides management support accordingly. Beyond the EIA process, we identify the risk of environmental incidents as a key issue and establish response strategies. In addition, following the LEAP approach proposed by the Taskforce on Naturerelated Financial Disclosures (TNFD), we are identifying biodiversity-related risks and opportunities across four global sites directly operated by the company. S Biodiversity risk assessment

Environmental Impact Assessment Process



Results of the 2024 environmental impact assessment

Department	Process and area	Environmental aspect	Environmental impact	Environmental impact level	Follow-up measures
		PRODUCT EDC	Soil / Noise	М	Internal management
VCM Production Team 1 _	DC EDC PROCESS	FURNACE FEED EDC	Soil / Noise	М	Internal management
		EDC Impurity- containing EDC	Soil / Noise	М	Internal management
realit =	VCM PROCESS	FURNACE FEED EDC	Soil / Noise	М	Internal management
	OXY EDC PROCESS	Impurity-containing EDC	Soil / Noise	М	Internal management
CA Production Team 1	CA1/2/4 PROCESS	Product environmental impact assessment (chlorine)	Human / Storage	М	Internal management

Integration with company-wide risk management | Hanwha Solutions integrates our environmental risk management process into the overall company-wide risk management framework. Each year, environmental risks are identified based on business structure and the characteristics of each division, followed by an evaluation of their likelihood and potential impact to determine risk levels. We establish and implement response strategies for identified risks and regularly monitors the results of risk identification and evaluation. In accordance with the company-wide risk management framework, major company-wide risks—including those related to environmental impact—are reported annually to the ESG Committee under the Board of Directors to ensure proper oversight. S Company-wide risk management system

Environmental performance evaluation and management | The Chemical Division monitors and reports key environmental performance indicators to senior management in order to minimize environmental risks and respond proactively. Since 2020, the division has held biannual environmental sessions led by the Production & Safety Generalization(CPO/CSO), Production Safety and conducts monthly environmental PL (Project Leader) meetings across all sites to support continuous environmental improvement. In addition, the division participates in environmental expos, hosts internal workshops, and provides four annual training sessions for environmental personnel. These activities serve as platforms for sharing and discussing site-specific key issues and benchmarking practices.

The Qcells Division manages its implementation performance based on the company-wide environmental performance evaluation system. It also verifies and improves performance through annual internal and external environmental audits.

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Regulatory Compliance Activities Related to Environmental Management

Hanwha Solutions consistently monitor evolving domestic and international laws and regulations related to environmental management, and conduct company-wide environmental inspections to ensure proactive and offective mitigation of legal risks

Key environmental regulations	Hanwha Solutions' response initiatives and major achievements
The 4th Basic Plan for the Emissions Trading Scheme (Reviewed and approved by the Cabinet on December 31, 2024)	Hanuha Solutions is aligning our efforts with the policy direction and target-based approach set forth in the 4th Basic Plan for the Emissions Trading Scheme (2026–2035). This plan is a legally mandated framework designed to support the achievement of Korea's 2030 Nationally Determined Contribution (NDC) and 2050 Net Zero goal. To comply with this legally mandated plan, we are undertaking a range of initiatives, including improving energy efficiency, expanding the use or renewable energy such as solar power, promoting internal reduction projects through process-based carbon reduction, and optimizing emissions trading.
The 3rd Basic Plan for Chemical Substance	Following the reclassification of existing toxic substances into categories based on acute/chronic human toxicity and environmental hazards, hazardous chemical handling facilities will be categorized

human toxicity and environmental hazards, hazardous chemical handling facilities will be categorized by substance type, with more detailed management standards to be established. In addition, when handling new chemical substances with unverified hazards, we will be required to Evaluation (2024-2028)

notify relevant authorities and implement management measures to minimize risks. We also plan to establish and implement proactive response plans during the pre-announcement phase of substance regulations in preparation for the expansion of restricted, prohibited, and authorized substances.

Hanwha Solutions is preparing for the transition to a sustainable circular economy. We aim

The Act on Promotion of Transition to Circular Economy and Society (Effective as of January 1. 20241

(Pre-announced on July

Registration and

11, 2024)

to move beyond the current approach centered on waste prevention, circular use, and disposal by promoting efficient resource use across the entire lifecycle—including production, consumption, and distribution. Key initiatives include reducing the generation of primary and metallic waste during the production phase, minimizing the use of natural resources while promoting the use of recycled materials, and converting previously landfilled waste into recyclable resources.

The 3rd Comprehensive Plans to Improve (Effective as of December 27, 2022]

Hanwha Solutions is engaging in a joint response initiative with the petrochemical industry to prepare for the tightening of the Ministry of Environment's air pollutant emission standards and Atmospheric Environment total emission caps starting in 2025. In line with the government's comprehensive plan, we plan to commission research projects focused on developing emission reduction roadmaps and optimal operation methodologies for high-emission facilities. Through these efforts, We aim to proactively respond to stricter air-related regulations and minimize associated risks.

Management System

Integrated Environmental Hanwha Solutions has established an integrated environmental management system to assess and manage environmental impacts generated within our sites. We are also strengthening our internal (Effective as of January 1, management framework by enhancing monitoring systems to support the ongoing and systematic management of environmental facilities and by installing additional pollution control equipment where

Status of Integrated Environmental Permit Acquisition

Chen	ni⊂al Division	Qcells Division
Yeosu Plants 3 and Ulsan Plant 2 (2021)	Yeosu Plants 1 and 2, Ulsan Plants 1 and 3 (2022)	Jincheon Plant (2024)

Environmental Training

Hanwha Solutions provides environmental management training for its employees to raise awareness and support proactive responses to changes in environmental laws and policies.

Major Environmental Training Sessions Conducted by the Chemical Division

Training date	Training title	Participants	Format	Number of participants	Purpose & Topics
March 2024	Revised regulations and violation cases (first half)	Environmental staff	In-person / Real-time video training	20	Environmental management benchmarking (BM
June 2024	Trends and issues in environmental policy	CSO, site heads, employees, etc.	In-person / Real-time video training	30	Understanding environmental policy trends
September 2024	Revised regulations and violation cases (second half)	Environmental staff	In-person / Real-time video training	20	Environmental management benchmarking (BM
December 2024	Response plans for strengthened environmental policies	CSO, site heads, employees, etc.	In-person / Real-time video training	30	Establishing response plans for strengthened environmental policies

Major Environmental Training Sessions Conducted by the Qcells Division

Training date	Training title	Participants	Format	Number of participants	Purpose & Topics
2024	Mandatory training for integrated environmental managers	Environmental staff	In-person training	2	Training for integrated environmental managers
2024	Training for handlers and managers of hazardous chemicals	Handlers / Managers	In-person training	758	Employee handling hazardous chemicals
December 2024	Follow-up management for integrated permits	Environmental staff	In-person training	7	Environmental management benchmarking (BM)

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The **Chemical Division** monitors key indicators, such as air pollutant emissions and water consumption, to track its environmental management performance. In addition, to minimize the **Hanwha Solutions'** environmental impact, the division sets mid- to long-term targets for each factor and monitors progress toward achieving these goals.

Environmental Targets and Performance

			2024		2025	Mid-to
Management items	Unit	Target	Performance	Year-on-year improvement rate	Target	long-term target (by 2030)
Greenhouse gas emissions	MT/MT	0.375	0.382	1.8%	0.389	0.334
Air pollutant emissions	Kg/MT	0.024	0.025	0.0%	0.022	0.015
Water consumption	MT/MT	2.58	2.71	0.4%	2.47	2.13
Waste disposal	Kg/MT	4.14	4.21	14.3%	4.07	3.32
Energy consumption intensity*	GJ per KRW 100 million	362	405	11%	412	368

^{*} The 2024 target value was revised based on the application of the electricity conversion factor (1 MWh = 3.6 GJ).

Environmental management investment | Hanwha Solutions invests in activities across its business divisions to reduce air pollutant emissions, minimize the impact of hazardous chemicals, and strengthen water resource management. These investments help prevent and mitigate environmental management risks.

Environmental Investment Performance and Plans

	Chemi	cal	Qcells
Major investment details	(Air pollutants) Installa system for hydrogen be (Air pollutants) Installa SILO dust removal (Water resources / wat Replacement of pumps at the wastewater trea	oilers tion of a blower for er pollutants) s and compressors	(Air pollutants) Plan to install an ozone generator (Air pollutants) Plan to install TMS for a pollution control facilities (Water resources / water pollutants) Installed a scraper and baffle at the wastewater treatment facility (Water resources / water pollutants) Plan to expand and upgrade the wastewater treatment facility
Investment	2024 actual	KRW 10.42	2 billion
amount	2025 planned	KRW 16.42	2 billion

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OUR STORY

"For every product and every technology, we design with sustainability in mind."

Hanwha Solutions aims to lead the energy transition, expand our eco-friendly business models, respond to change and contribute to a sustainable future.

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Hanwha Solutions has established and operates a management system for sustainable product and technology development. We are also prioritizing the development of future growth drivers through next-quentation products and advanced technologies.

Role of management | The CEO of the **Chemical Division** is briefed twice a year on product development, and reviews the key status of R&D as well as the progress of product development during monthly research and innovation meetings. The CEO of the **Qcells Division** reviews development status through monthly development reports.

Compensation tied to R&D performance | The Chemical Division incorporates performance in securing core technologies for next-generation materials into the CEO's KPIs. This is intended to strengthen the alignment between product and technology development outcomes and mid- to long-term business performance. In addition, KPIs for executives and managers of relevant division reflect achievements in securing sustainable growth technologies and expanding businesses based on eco-friendly technologies.

The **Qcells Division** has identified the development of next-generation renewable energy technologies and the enhancement of performance and quality as strategic initiatives. Through these initiatives, it is accelerating the transition to eco-friendly energy.

R&D Organization of Chemical Division



Product and technology development organization | The Chemical Division conducts research and development on sustainable products and technologies, including polyolefin (PO) based on recycled raw materials, bio-attributed PVC, and water electrolysis, which are centered around the Research & Development Institute. In particular, the Bio Eng. Department is researching cultured meat, which is emerging as a sustainable future food business.

The **Qcells** Division has established domestic and overseas R&D organizations dedicated to solar hardware and software research. These organizations conduct research across the full spectrum of solar solutions—from higherficiency solar modules and equipment, to hardware for module integration system, such as inverters, and software platforms that support those systems.

R&D Organization of Qcells Division



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Identification of Risks Related to Sustainable Product and Technology Development

Hanwha Solutions identifies both risks and opportunities arising from climate change and recognize technology development as a key means and essential element for minimizing risks and maximizing opportunities. Accordingly, we have incorporated sustainable product and technology development into our response strategy and are implementing them.

Category	Factor	Business impacts	Response strategy
	Expanded regulations on fossil-based products	Potential sales decline due to tightening regulations, including stricter plastic-related policies and the strengthening of the Resource Recycling Act, and the need to respond to national plans concerning the use of bio-based raw materials.	Establishment of circular economy systems
Risk	Changes in consumer behavior and prejudice against existing business areas	Sales decline due to the growing demand for circular resources or low-carbon materials and increasing negative perceptions of existing products, and the need to diversify raw materials.	Establishment of circular economy systems
Emergence of low-carbo alternatives to existing fossil-based products, transition to low-carbon technology, and failure in	fossil-based products,	Market entry limitation due to the dominance of leading companies in the low-carbon market and their monopoly on core technologies; transitioning to low-carbon processes or sustainability-related businesses incurring technology adoption costs; and risk of R&D or investment failures related to underdeveloped sustainability-related technologies.	Investment process for eco-friendly facilities
Opportunity	Expansion of renewable energy adoption and enactment of related laws and policies	Expansion of green power usage opportunities and enhancement of corporate reputation driven by the increase in the national renewable energy generation ratio; growth of the hydrogen industry ecosystem; rising interest in new businesses such as solar products and renewable energy consulting; and expansion of the company's presence in the power market through the development of new business models, including power brokerage and power bidding.	Expansion of eco-friendly businesses Establishment of circular economy systems RE100 and renewable energy infrastructure development Leading provider of Total Energy Solutions
	Rising demand for bio-based and recycled plastics	Addressing demand for circular economy and low-carbon, and securing new markets such as bio-based and recycled plastics.	Establishment of circular economy systems
	Growing interest in solar energy solutions utilizing idle land	Increase in demand for solar products optimized for installation and attachment on various spaces such as farmland, water surfaces, and buildings, which creates new sales opportunities, and diversification of the project's stakeholder base to include government bodies, public institutions, and cooperatives.	RE100 and renewable energy infrastructure development Leading provider of Total Energy Solutions

Sustainable Product and Technology Expansion Strategy

Hanwha Solutions has established a sustainable business strategy to develop ourselves as a leader in smart eco-friendly energy solutions and customer-focused materials. Focusing on key strategic areas, including building a renewable energy value chain, strengthening solar technology leadership, transitioning to a hydrogen ecosystem, and developing circular technologies, we are actively conducting R&D and investment activities to enhance product technological capabilities. Through differentiated technologies and innovation, We aim to provide solutions across various sectors and lay the foundation for sustainable growth in the future.

Sustainable Product and Technology Expansion Strategy



Investment process for eco-friendly facilities

 Establishment of processes including investment planning, preliminary review, approval, and execution



Expansion of eco-friendly businesses

- Development of Anion Exchange Membrane Electrolysis Cell (AEMEC) technology
- . Commercialization of cultured meat



Establishment of circular economy systems

- Development of physically and chemically recycled products
- Expansion of recyclable raw materials and resources, such as rPE
 Building a resource circulation structure through recycling of endof-life modules



RE100 and renewable energy infrastructure development

- Development of smart green industrial complexes (RE100)
- Development of renewable energy infrastructure



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- Improving solar energy utilization efficiency based on cell and module R&D
- Promoting the economic use of renewable energy through power retail business

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Investment process for eco-friendly facilities

Hanwha Solutions aims to enhance the environmental sustainability of our products by considering environmental responsibility from the facility investment planning stage. To this end, we require the submission of an environment and safety review report for all facility investments at our domestic plants. During the detailed review process, an economic feasibility analysis is conducted to assess the financial impact. In parallel, a greenhouse gas emissions calculation is prepared to reflect fluctuation in greenhouse gas due to changes in electricity consumption. Through this process, we evaluate both environmental risks and opportunities in investment decisions and strive to balance environmental and financial performance.

Eco-friendly Facility Investment Process



Expansion of eco-friendly businesses

R&D on Anion Exchange Membrane Electrolysis Cells (AEMEC) | The Chemical Division is conducting research and development with the aim of commercializing Anion Exchange Membrane Electrolysis cell (AEMEC) technology, which is emerging as a key technology for building a green hydrogen ecosystem. AEMEC technology is a next-generation electrolysis method that combines the advantages of alkaline electrolysis (AEC) technology and proton exchange membrane electrolysis (PEMEC) technology. It allows for large-scale hydrogen production with lower capital investment and reduced electricity consumption.

Hanwha Solutions aims to commercialize AEMEC technology and plants to expand our business globally by enhancing its competitiveness through proprietary technologies.



Securing eco-friendly technologies through research collaboration | Hanwha Solutions is conducting joint research with an Environmental Research Institute of Seoul National University through a business agreement to secure next-generation green technologies such as AEM electrolysis and carbon conversion. Through this collaboration, we are building a foundation for the expansion of sustainable technology by leveraging and securing human resources and strengthening the competitiveness of commercialization technologies.

As a result of these research efforts, six domestic and international patents had been filed by 2024, and we plan to continue expanding our patent going forward.

Developing cultured meat technology I To strengthen our research and development of core cultured meat technologies, Hanwha Solutions established the Bio Eng. Research Center in 2023 and launched an R&D platform dedicated to cultured meat and related materials. We have also developed processing technologies and established analytical facilities to support systematic technology development. Through these efforts, Hanwha Solutions aims to proactively secure competitive technologies in the cultured meat. Looking ahead, we plan to expand our business with the goal of leading the cultured meat industry in the 2030s, contributing to solutions for global climate change and future food shortages.

Investment in Food Tech companies | Hanwha Solutions is actively pursuing external collaboration, which includes an investment in DaNAgreen Co., Ltd., a domestic cultured meat startup, to support R&D in the cultured meat. Through these efforts, we aim to accelerate the commercialization of cultured meat and promote the development and commercialization of sustainable technologies that contribute to environmental protection and animal welfare.

Investment in Climate-Tech | Hanwha Solutions is participating as a limited partner (LP) in domestic and international funds that invest in innovative climate tech aimed at reducing carbon dioxide emissions across the energy, food, and materials sectors. Through these investments, we gain insight into market conditions and industry trends of low-carbon technologies, while also gaining access to investment opportunities provided through the fund. We make direct investments in high-potential businesses and engage in joint research and development for promising technologies to strengthen strategic technological collaboration for sustainable future.

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Establishment of circular economy systems

Developing technologies to improve recyclability | The Chemical Division is developing technologies to improve the recyclability of ethylene vinyl acetate (EVA), while the Wire&Cable Division is working on technologies to make cross-linked polyethylene (XLPE) recyclable. This technology uses energy to break the cross-links in EVA and XLPE, which have complex bonded structures. As a result, the materials can not only be recyclable, but also converted into high-quality recycled resins with reduced discoloration, odor, and foreign substances compared to conventional thermal treatment methods.

The **Chemical Division** has completed the development of Biaxially Oriented Polyethylene (BOPE) film to improve the recyclability of flexible packaging films, which are typically difficult to recycle. We are now preparing for its commercialization. BOPE is produced through biaxial stretching in both the Machine Direction Orientation (MDO) and the Transverse Direction Orientation (TDO). This process allows for a combination of high mechanical strength, impact resistance, and transparency, which are difficult to achieve with conventional polyethylene films. In addition, BOPE-based flexible packaging films are composed solely of polyethylene (PE), making them significantly more recyclable than conventional multi-material flexible packaging films.

The **Chemical Division** plans to apply its proprietary BOPE technology to food and industrial lamination films. We are currently preparing for customer evaluations and quality verification for commercialization. Going forward, we will pursue commercialization in phases, taking into account market conditions and schedule for the evaluations.

Obtaining eco-friendly certifications | The Chemical Division is working to obtain and renew ISCC Plus and GRS certifications, which are valid for one year, as part of its efforts to expand the use of recycled and bio-based raw materials and contribute to a sustainable circular economy. The division produces bio-attributed PVC and EVA using bio-based feedstocks, and in 2024, expanded ISCC Plus-certified product portfolio from 10 to 11 items. In addition, for rPE products made with recycled materials, the division renewed our GRS certifications by increasing the certified content ratios from 80%, 50%, and 32% in 2023 to 80%, 55%, and 50% in 2024, while also increasing sales of GRS-certified products. In this way, the Chemical Division is contributing to the transition to recycled materials and the establishment of a resource circular economy.

Category	Definition	Certified product group	Note
ISCC Plus	International sustainability certification in compliance with the EU Renewable Energy Directives, certifying that bio-based and recycled raw materials are used in a sustainable production process	11 product groups including caustic soda, PO, TDI, PVC, and H ₂	10 product groups recertified, 1 newly certified (as of Sep. 2024)
GRS	Global circular economy certification for products containing more than 20% recycled raw materials	rPE (recycled polyethylene) materials	Certification renewed (as of Feb. 2025)

Expanding the use of recycled materials | The Chemical Division is expanding the development of new products using waste plastic materials by primarily utilizing Mechanical Recycling (MR) technology. In 2022, recycled polyethylene (rPE) was used as a packaging material for cosmetic containers. In 2023, it was applied to Air Cap for automotive parts packaging and successfully commercialized, which led to approximately 335 tons being sold in 2024.

In 2023, the division began collaborating with LG Display to develop GRS-certified cushioning packaging materials for display panel protection using rPE materials. In 2024, it signed an MOU with LG Display and began product sales. In addition, the division is partnering with companies in sectors such as electricity, electronics, agriculture, and hygiene packaging to develop rPE materials suitable for diverse industries. It aims to reach annual production capacity of 1,000 tons by 2027.

The **Chemical Division** is steadily expanding the use of eco-friendly raw materials and components. FFS packaging bags made with approximately 30% rPE materials were used for all products at the Ulsan plant and for 22 products at the Yeosu plant. These efforts reflect the division's proactive response to domestic and international regulations on plastic production and waste management. The division is also working to lay the groundwork for a plastic circular ecosystem, the reduction of environmental impact, and carbon resource circulation.

The Qcells Division uses recycled materials for approximately 85–90% of the cushioning protectors used in solar module packaging. In 2023, the division improved its packaging method by shifting from a horizontal to a vertical format, replacing plastic (PP-based) and vinyl materials with paper-based alternatives. All packaging components are made of paper, except for a small amount of non-paper material used to fix the package externally from moving. The division reduced paper packaging usage per unit of production by 32% in 2024 compared to 2023, through ongoing improvements in packaging design to reduce material use. In addition, the division actively adopts FSC-certified packaging for inverters, ESS units, and other products it manufactures. Printed materials included in module shipments are also being digitized through the use of QR codes to reduce unnecessary resource consumption.

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RE100 and Renewable Energy Infrastructure Development

Smart green industrial complex (RE100) development project | The **Insight** Division continues developing H-Techno Valley, the first RE100certified industrial complex in Gyeonggi-do, South Korea. The H-Techno Valley, which is to be located in Yanggam-myeon, Hwaseong-si, is the 740,000 m² complex being designed as a specialized industrial zone for semiconductors and automobiles, with plans to install renewable energy facilities such as solar power and fuel cells. As part of the project, the division has established a basic industrial complex management plan requiring tenant companies to install a certain capacity of solar power generation facilities.

It also plans to provide support to ensure the stable installation and operation of these facilities by new tenants. In addition, to ensure stable power supply and improve energy self-sufficiency, the division has designated land for a 20MW hydrogen fuel cell power plant and plans to pursue a business by proceeding with a fuel cell bidding process under the Clean Hydrogen Portfolio Standards (CHPS) in coordination with the construction timeline of the adjacent KEPCO substation.

Renewable energy development project | The Chemical Division is participating in a national project to establish a water electrolysisbased hydrogen production facility at the Daegwallyeong Wind Farm III in Pyeongchang, Gangwon-do Province. The facility is scheduled for completion in 2025 and aims to produce over one ton of green hydrogen per day using a 2.5MW-class electrolyzer. The division seeks to contribute to the wider usage of renewable energy by accelerating the commercialization of water electrolysis-based hydrogen.

Technology development for improving infrastructure efficiency | In mountainous areas, the conventional method of installing solar power systems facing due south often results in difficulty in land acquisition and inefficient land use, which in turn limits the overall system capacity. To address this issue, the Insight Division has obtained a patent for a structure that enables east-west directional installation of solar power facilities. As a result, the new structure allows for shorter construction periods, greater economic feasibility, and enhanced structural stability due to reduced wind resistance. The division plans to gradually expand the application of this patented technology, aiming to enhance both the efficiency and cost-effectiveness of solar power installations.

Roadmap for Renewable Energy Infrastructure Development



Long-term (6-10 years)



Installing solar modules on factory rooftops and idle land within the industrial complex





Establishing hydrogen fuel cell power plants and using city gas within the complex

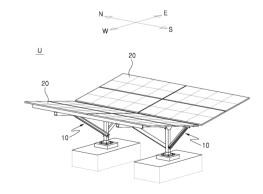




Promoting the introduction of eco-friendly facilities such as data centers and loaistics hubs



Illustration of the Mounting Structure



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Advancing Technological Leadership in the Solar Sector | The Qcells Division has independently developed and produced an M10-sized perovskite-crystalline silicon tandem solar cell, marking a significant milestone in solar innovation. This next-generation solar technology achieved a certified power conversion efficiency of 28.6%, as verified by the independent institute Fraunhofer ISE, which is an industry-leading record.

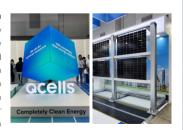
By replacing conventional silicon modules (with 23–24% efficiency) with high-efficiency tandem modules (rated at 26–27%), power generation can be increased by approximately 15%. This advancement supports global decarbonization goals by enhancing the energy yield of solar installations without expanding their footprint. Furthermore, tandem modules offer improved performance in high-temperature and low-light conditions, contributing to the economic and environmental sustainability of solar energy across diverse geographies.

To ensure these technological gains translate to real-world impact, the division is actively developing scalable manufacturing technologies at our Jincheon pilot line, aiming to enable mass production and rapid deployment. In February 2024, the Qcells Division launched the Q.TRON G2 series, featuring its proprietary Q.ANTUM NEO technology—an advanced TOPCon cell manufacturing process. Offering approximately 1.5% higher power conversion efficiency and up to 40W more output per module compared to conventional PERC cells, the Q.TRON G2 supports higher energy yields in the same footprint. With an annual degradation rate of just 0.33%, the module provides enhanced durability and ensures reliable, long-term energy performance, aligning with Occells' commitment to high-efficiency, low-carbon solutions.

In parallel, the **Chemical Division's** establishment of H&G Chemical at 2023—a joint venture with GS Energy—demonstrates our strategy to build a resilient and sustainable supply chain.

CASE

At the 2024 International Green Energy Expo, Qcells Division showcased its expanding capabilities across the renewable energy value chain—including next-generation solar technologies, energy consulting, and power brokerage services. Highlights included the unveiling of the Q.TRON G2 module, a prototype of the tandem solar cell, and its new energy consulting services designed to support corporate customers in achieving RE100 targets. Through integrated offerings such as consulting, financing, EPC, and power brokerage, the division empowers businesses to transition to clean energy efficiently and responsibly. Ongoing participation in global industry events reflects our leadership in clean energy innovation and dedication to stakeholder engagement.



The JV's upcoming plant will produce ethylene vinyl acetate (EVA), a critical component that extends solar module longevity and enhances overall performance. Once operational in the second half of 2025, the facility will have an annual production capacity of 300,000 tons, strengthening domestic sourcing of key materials and reducing reliance on imports. This investment reinforces **Hanwha Solutions'** dedication to technological self-reliance and the advancement of environmentally responsible solar components.

Establishing a renewable energy value chain | In support of a robust and sustainable energy future, the Qcells Division is investing over KRW 3 trillion in the United States to establish the Solar Hub, a fully integrated solar manufacturing complex in Georgia. This facility spans the entire value chain—from ingot and wafer to cell and module production—ensuring greater supply chain stability and operational efficiency. Upon completion, the site will produce 8.4 GW of solar modules annually, capable of powering approximately 1.3 million U.S. households. The hub is projected to reduce 9.78 million tons of CO₂ emissions per year, significantly contributing to national and global climate targets. By localizing production, the division also minimizes transport-related emissions, supporting the development of a low-carbon, circular solar economy.

The Qcells Division leverages its vertically integrated model to deliver customized total energy solutions, encompassing product development, project implementation, electricity trading, and distributed energy services. In the North American market, the division provides a comprehensive one-stop solution, integrating hardware, software, financing, and operations, tailored to both private and corporate energy users. Through renewable energy forecasting, power market bidding, and expert energy consulting, the company contributes to the resilience and efficiency of the regional power grid, while supporting Korean and global businesses in meeting their renewable energy commitments.

The Qcells Division growing capabilities in large-scale energy infrastructure were further demonstrated in 2024 through its selection as the EPC partner for the Atlas Project, led by TransGrid Energy in the United States. This project includes the development of a 3.9 GWh standalone battery energy storage system (BESS) in La Paz County, Arizona, one of the largest of its kind in North America. The project plays a vital role in enhancing grid stability within the California Independent System Operator (CAISO) region by facilitating renewable energy integration and load balancing. By participating in strategic initiatives, the Qcells Division is strengthening its position in the U.S. utility-scale battery storage and renewable energy EPC markets. These efforts reflect the company's evolution into a comprehensive energy solutions provider, advancing the energy transition while creating long-term value for stakeholders and the environment.

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Investment financing activities for eco-friendly business

Hanwha Solutions ESG bond framework has been assessed to be in line with the Green Bond Principles (GBP) issued by the International Capital Market Association (ICMA). Based on this framework, we received the highest ratings of G1 and Green 1 for all of our outstanding green bonds from external evaluation agencies* as of December 2024.

Investment financing for Hanwha Solutions' eco-friendly business and evaluation status

Hanwha Solutions' ESG Non-guaranteed public offering bond (Issued in January 2022)



In December 2023, the full amount was allocated to the construction of solar cell and module production lines designed to accommodate large-area wafers and apply TOPCon technology.



- Received the highest ratings (G1, Green 1) in all post-evaluations conducted by external evaluation agencies*.
- The post-allocation report includes environmental improvements, such as increased renewable energy (solar) generation per cell and module unit and per area, resulting from the adoption of new technologies.





As of the end of December 2024, the entire proceeds were allocated to the Chemical Division for investments in electrolysis facilities and the conversion of solar cell and module production lines.



- · Received the highest rating (Green 1) in the certification assessment by NICE Investors Service.
- The evaluation report includes environmental improvements such as reduced electricity consumption and greenhouse gas emissions through the replacement of outdated electrolysis equipment, as well as improved eco-friendliness of products resulting from the conversion of solar production lines.

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Risk Management

Hanwha Solutions recognizes eco-friendly businesses as a key driver of future growth and are making active efforts to mitigate risks that may arise during their implementation.

The **Chemical** and **Qcells Divisions** analyze industry, market, and competitor trends in the fields of sustainable products and technologies, and monitor shifts in demand and broader trends through Market Intelligence. Based on these findings, development decisions are made through reviews by R&D and manufacturing organizations, and are reflected into mid- to long-term strategic planning.

The **Chemical Division** holds company-wide R&D strategy meetings twice a year to review the progress of its eco-friendly business initiatives and monitor changes in demand and trends related to eco-friendly products and technologies. Based on these insights, the division carries out risk management activities. It also publishes a weekly internal newsletter covering key industry topics such as liquefied hydrogen stations, CCUS technologies, and lithium market trends. Through these efforts, the division is striving to improve internal access to information and strengthen its capacity for strategic response.

Bio Eng. Department of the **Chemical Division** closely monitors regulatory and technological trends to stay ahead in the rapidly evolving cultured meat market. The department is also strengthening engagement and collaboration within the global cultured meat ecosystem by actively communicating with academic, industry, and research institutions such as the Bio-based Future Food Industry Committee and the Good Food Institute (GFI).

The **Qcells Division** gathers insights into demand and trends for its products and technologies through customer surveys, and incorporates these findings into its strategy for developing sustainable products and technologies.

Metrics & Targets

Hanwha Solutions has established targets for the development of sustainable products and monitors key performances to ensure effective management. The Chemical Division has strengthened its capabilities in sustainable product manufacturing technologies by entering into a research partnership with Seoul National University and jointly operating an eco-friendly research center since 2022. The research center sets annual R&D goals and reviews progress to evaluate performance.

The **Qcells Division** operates dedicated customer service teams by region to gather customer VOC on an ongoing basis. Insights from customer VOC inform the development of sustainable products and technologies, aligned with market dynamics and customer expectations. The division regularly reviews progress toward these goals and evaluates the outcomes.

Goals and key achievements in sustainable technology development

Div	rision	Details	2024 goals	2024 achievements
	Carbon resource	Development of catalysts for pyrolysis oil utilization	Evaluation for expansion of model feed Evaluation of catalyst activity	Completed model feed evaluation Completed catalyst activity assessment
	utilization	Development of catalysts for CO ₂ conversion	• Evaluation of catalyst durability and stability	Completed catalyst synthesis, testing, and analysis
	Ammonia Development of catalysts for ammonia decomposition		• Screening of high-efficiency, high-performance catalysts	• Conducted evaluation of precursors and synthesis methods
Chemical	Water electrolysis	Advancement of energy management technologies for anion exchange membrane water electrolysis integrated with renewable energy	Process system modeling, control, and optimization Application of AI technologies for control and optimization	Developed process system modeling, control, and optimization program Developed Al-based automation technology for control and optimization
		Development of new monomers	• Synthesis of monomers through novel structural design	Synthesized multiple types of new monomers
		Crosslinking using newly developed monomers	Fabrication of crosslinked membranes using new monomers	Evaluated polymerization recipes and fabricated crosslinked membranes
	Waste resource recycling	Development of technologies to convert waste into raw materials	System design and evaluation	Completed system development and performance evaluation
Qcells	Manufacturing technology	Expanding influence as a solar manufacturer in the U.S. market	• Further expansion of module production lines in the U.S	 Commenced commercial production of module line at the Cartersville Plant in April, adding 3.3 GW of annual capacity
		Production of high-efficiency, high-output solar modules	Development of technologies to enhance power output, efficiency, and reliability of N-type silicon solar cells using TOPCon technology; commencement of full-scale production and sales	 Improved power output by approximately 40 W in N-type silicon solar cells using TOPCon technology, compared to previous models of the same size As of December 2024, 590 Wp for Q.PEAK DUO G11 XL, and 630 Wp for Q.TRON G2 XL
		Production of next-generation perovskite-silicon tandem cells and modules	Achievement of world's highest efficiency for tandem cells Securing mass-production technology for commercialization of perovskite solar cells	Achieved world's highest conversion efficiency of 28.6% for M10 tandem cell, certified by a third-party international organization Built pilot production facilities, optimized module design, and developed mass production processes
	System System business development System business		Development of proprietary solutions for the power business, such as TPO; full-scale system business launched through planning, development, and release of new system products	Developed core AC system components and software platforms for the U.S. market Developed software for control and monitoring of utility-scale solar power plants in the U.S. Advanced software features for bid optimization and revenue modeling Advanced AI and data science capabilities
	Provision of integrated solar solutions, including EPC solar solutions (Engineering, Procurement, and Construction) services		Strengthening foundation for rapid transition into a total solar solution provider by focusing on the EPC business	Secured the foundation through enhancement of the dedicated EPC organization, recruitment of expert personnel, expansion of project acquisition, and provision of integrated solutions

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OUR STORY

"It is our responsibility to ensure that everyone stays safe and healthy at work."

Hanwha Solutions is committed to creating a safe and healthy working environment for both employees and partner company personnel through a globally aligned safety and health management system.

We strive to fulfill our social responsibilities by putting the value of occupational safety and health into practice.

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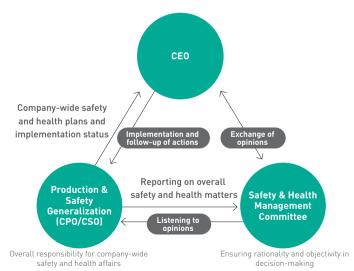


Hanwha Solutions operates a company-wide occupational safety and health governance system that goes beyond basic compliance and supports our goal of achieving zero accidents and zero injuries.

The Chemical Division has formed the Safety & Health Management Committee, chaired by the CEO, to promote a systematic approach to safety and health management. The CEO directly oversees major safety and health issues and participates in related decision-making, thereby strengthening responsibility and leadership in safety management. The committee is composed of key executives, including the CEO, the Production & Safety Generalization(CPO/CSO), heads of each site, the Head of the Corporate Planning Department, the Head of Management Support Office, and the Head of the Safety, Health & Environment Office. Through regular meetings, the committee shares strategic directions and key issues related to safety and health and discusses areas for improvement. This ensures an objective and rational decision-making process and drives substantive management efforts to enhance occupational safety and health performance.

In addition, the ESG Committee reviews ESG-related risks in the field of safety and health. Based on these assessments, we identify company-wide risks and establish preventive response plans. These efforts contribute to building an integrated safety, health, and environment management system.

Operation of the Safety & Health Management Committee



Safety, Health and Environment Management Structure | Hanwha Solutions has established and operates a safety, health, and environment (SHE) management structure that reflects the characteristics of each industry and business division. Guided by the shared goal of achieving zero accidents and zero injuries, we continue to strengthen this structure through a systematic and integrated SHE approach.

The Chemical Division operates its SHE organization under the leadership of the Production & Safety Generalization(CPO/CSO), who oversees the planning and implementation of all related activities. At the site level, each site head is assigned to serve as the primary person responsible for on-site safety and health. To enhance expertise, the previously integrated safety, health and environment departments have been separated into dedicated safety & health departments and environment departments. In addition, each site has dedicated teams by function. including production, R&D, and support, that carry out SHE activities and loss prevention efforts.

Chemical Division's Safety and Health Management Organization



Key Roles of each Safety and Health Organization

Organization	Key responsibilities			
Production & Safety Generalization (CPO/CSO)	Overseeing work related to company-wide safety, health, and environment (SHE) Monitoring and assessing the implementation status of SHE practices at each site			
Safety, Health & Environment office (SHE office)	Planning and managing task related to corporate-level SHE, including: Conducting SHE assessments and evalu- ations; ensuring compliance with relevant SHE regulations Establishing and revising company-wide SHE-related policies and procedures			
Site Heads	Supervising site-level SHE and loss prevention activities Developing accident prevention plans and fulfilling duties specified under the Occupational Safety and Health Act Attending Occupational Safety and Health Committee and Supplier Safety and Health Council			
Site-level SHE departments	Fulfilling duties required under the Occupational Safety and Health Act Supporting the site head in managing the safety and health environment of the site Ensuring regulatory compliance and safety, health and environment			
Related department at each site	Taking responsibility for SHE and loss prevention activities within each functional department Carrying out SHE-related measures such a safety inspections, and training programs			

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Safety & Health Management

The Qcells Division manages its Environmental, Health, and Safety (EHS) initiatives through a

occupational safety and health policies and objectives with the approval of the division head. Based on these, the division operates the Safety and Health Office. which is responsible for developing overall safety and health strategies and overseeing safety management systems across all sites. The CSO, assigned to the Safety and Health Office, oversees Safety and health affairs across the Insight Division and regularly monitors and evaluates implementation at each site. Each site appoints a safety and health manager responsible for overseeing all Safety and healthrelated matters and ensuring compliance with relevant regulations. Site-level Safety and health teams provide administrative support and practical implementation. In addition, supervisors are designated to clarify Safety and health responsibilities for all employees and to actively participate in accident prevention efforts.

Safety and health Councils | Hanwha Solutions operates division-level safety and health councils to bridge the information gap between on-site operations and management and to strengthen incident prevention and response capabilities. These Councils facilitate ongoing communication, site inspections, and monitoring activities. Through these efforts, we enhance the effectiveness of our safety and health systems and promote a safety culture grounded in company-wide participation.

Councils	Led by	Frequency	Key agenda items	
Chemical				
Safety & Health Management Committee	Company-wide, site level	Quarterly	Deliberation and decision-making on overall safety and health policies, strategies, and business activities	
Safety Committee Company- site lev		Monthly	Discussion on strengthening the safety and health management system to address key SHE issues and enhance incident prevention efforts	
VFL (Visible Felt Leadership)	Site level	Monthly	• Site visits and direct communication with workers to reinforce top management's commitment to safety	
Monthly Safety Meeting Site level		Monthly	(Site) Implementation of loss prevention activities related to SHE risks (Department) Review of safety-related activities and gathering employee feedback	
Qcells				
Conference Call	Head office	Quarterly	Communication to promote early adoption of company-wide EHS systems, share best practices, and gather feedback between headquarters and sites	
Safety and Health Committee	Site level	Quarterly	Gathering employee feedback on on-site safety and health issues and implementation of improvements	
Risk Assessment Councils Site level		Monthly, weekly	Decision-making to address unsafe conditions, gathering feedbacks from employees, and sharing key safety and health matters	
Management of Change Committee	Site level	As needed	Comprehensive risk review through risk assessment and pre-startup inspections during process or equipment changes	
Insight				
Safety and Health Meeting	Company-wide, site level	Monthly	Review of safety and health status, performance, action plans and monthly safety initiatives	
Labor-Management Council Site level		Every 2 months	Engagement with employees to discuss safety and health issues and establish relevant action plans	
Risk Assessment Meeting Site level		Twice a month	Identification of on-site hazards and development of mitigation measures	

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structured governance system. The EHS Planning
Team, led by the Head of EHS Department (CSO), is
responsible for planning and supporting key activities,
including the development of EHS policies and the
execution of internal assessments. At both domestic
and overseas locations—including manufacturing
sites and R&D centers—senior EHS managers are
appointed to oversee site-level EHS operations.
These managers are supported by dedicated EHS
departments at each site, enhancing the division's
capacity for on-site implementation. In parallel, each
functional department is responsible for complying
with relevant EHS laws, regulations, and internal
standards. As frontline units, they carry out daily EHS
activities within their respective areas of responsibility.
The Insight Division establishes company-wide
Ocells Safety & Health Management Organization

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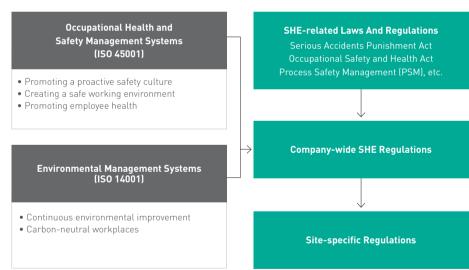


Linking compensation of key executives with performance | Hanwha Solutions incorporates safety and health management performance into the KPIs of key executives, including the CSO, and links these indicators to our compensation system. This approach is designed to strengthen executive accountability for safety and health.

Division	KPI status
	Chemical and Qcells Divisions: Targets for lost time injury rate (LTIR) are incorporated into the KPIs of key executives and team leaders at the site level.
Common	Insight and Qcells Divisions: For site-level personnel involved in safety and health activities, such as Safety and Health-related department heads and executives, safety and health managers, and supervisors, items to be inspected for the Serious Accidents Punishment Act are reflected in KPIs at a weight of 10%.
Chemical	Production & Safety Generalization(CPO/CSO) and Head of the Safety, Health & Environment Office: LTIR, etc. are reflected in the KPIs.
Qcells	Heads of domestic and overseas organizations and departments, including the Head of EHS Department (CSO): number of process incidents, injury cases, and improvement rates for safety and environmental inspections are reflected in the KPIs.
Insight	Head of Safety and Health Office(CSO): annual number of safety accidents are reflected in the KPIs.

SHE policy | At Hanwha Solutions, the Safety, Health and Environment (SHE) policy defines the responsibilities and leadership roles of the Board of Directors and management, functioning as a central pillar of the company-wide governance system that spans strategy development, implementation, and evaluation. The policy and related regulations have been established in accordance with ISO 45001 (Occupational Health and Safety Management Systems), ISO 14001 (Environmental Management Systems), and relevant domestic and international laws. With approval from heads of each division, the policy is officially announced and put into practice. It applies to all employees across the organization and is also recommended for compliance by external stakeholders, including local communities. Safety, health, and environment policy

Operation of Management Systems for Achieving SHE Goals and Policies



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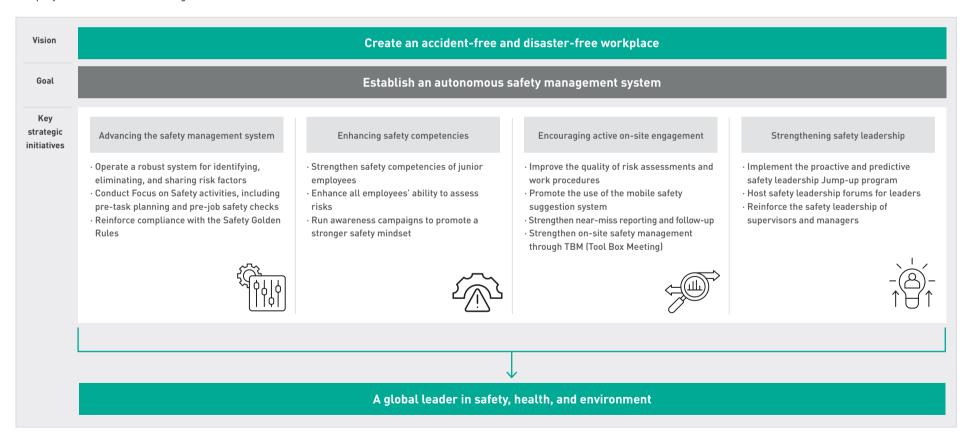




Safety & Health Management Strategy

To proactively respond to evolving occupational safety and health issues, Hanwha Solutions has established a mid- to long-term safety and health strategy based on past accidents analyses, safety culture assessments, reviews of personnel and equipment, and employee interviews. In line with this strategy, we have identified four key strategic initiatives aimed at establishing an autonomous safety management system and have set annual company-wide targets. Each business site also establishes and implements its own annual goals and action plans based on these strategic initiatives, contributing to more effective strategy execution company-wide.

Company-wide OSH Goals and Strategic Initiatives



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Division-specific safety and health strategic initiatives | Hanwha Solutions has established key strategic initiatives in the field of occupational safety and health that reflect the industrial characteristics of each division. Based on these initiatives, each division is implementing detailed action plans and continuously working toward achieving the company-wide vision and goals.

Chemical

Division-specific key strategic initiatives

Advancing the safety management system Enhancing safety competencies Strengthen safety competencies of junior employees Operate a robust system for identifying, eliminating, · Enhance all employees' ability to assess risks and sharing risk factors • Run awareness campaigns to promote a stronger Conduct Focus on Safety activities, including pre-task planning and pre-job safety checks Reinforce compliance with the Safety Golden Rules Strengthening safety leadership Encouraging active on-site engagement Improve the quality of risk assessments and work procedures · Implement the proactive and predictive safety leadership • Promote the use of the mobile safety suggestion system Jump-up program Strengthen near-miss reporting and follow-up Host safety leadership forums for leaders • Strengthen on-site safety management through TBM Reinforce the safety leadership of supervisors and (Tool Box Meeting) managers

Ocells

Establishing an autonomous safety culture system

- Promote eight key practices to build shared understanding of safety roles, responsibilities, and safe workplaces
- Strengthen fire, explosion, and leakage prevention activities

Conducting safety environment inspections and corrective actions

- Reinforce the operation of risk assessment councils
- Conduct effective safety and environmental inspections
- · Expand digital infrastructure for safety and environmental information management

Enhancing stakeholder communication

- Improve access to safety and environmental information and expand tailored safety communication
- Operate risk communication programs and foster professional communicators

Insight

Building a autonomous safety culture

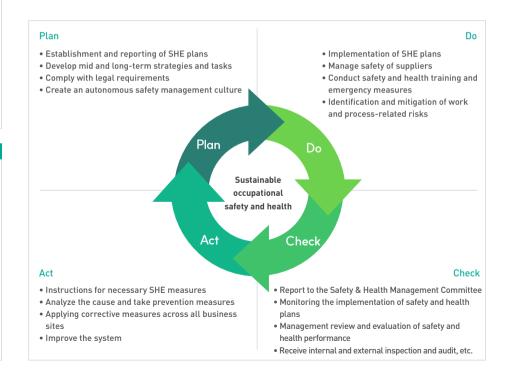
• Establish the 10 key safety rule for each business site

Responding to the Serious Accidents Punishment Act

Strengthening safety and health leadership in performance management

• Introduce line-based safety and health performance evaluations

Operation of the safety and health management system | The Chemical and Qcells Divisions have acquired and maintained ISO 45001 certification to promote an autonomous safety culture and ensure a safe working environment. In particular, the divisions have built and continue to operate a systematic safety and health management process based on the PDCA (Plan-Do-Check-Act) cycle, as defined in ISO 45001. PDCA serves as a core principle across the company's overall safety and health management and facilitates continuous improvement and risk minimization through a company-wide cycle of planning, implementation, monitoring, and improvement.



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Identification and response strategies for safety and health risks | Hanwha Solutions identifies potential occupational safety and health (OSH) risks at its headquarters and business sites, assess their likelihood and impact to determine risk levels, and establishes response strategies to minimize them. These strategies are reviewed annually based on implementation status and are updated and managed accordingly.

S	Company-wide	risk	management	system

Division	Risk factors	Risk level*	Response strategies and action taken in 2024	
	Risk of injury-related accidents (including fatalities and serious industrial accidents)	II	Promote safety awareness and culture	 Company-wide and site-level monitoring of preventive activities, with monthly reporting to the CEO Sharing of accident cases from other companies to prevent similar accidents (2 fire/explosion cases and 4 injury-related cases)
	Risk of injury-related accidents (including first-aid cases, minor injuries, and serious injuries)		Occupational safety and health activities with the participation of leaders	Establishment and implementation of a safety competency enhancement plan for junior and new employees
Chemical			Establishment and implementation of safety rules	Promotion of the Safety Golden Rules through internal broadcasts and bulletin boards
		L	Improving Risk Factor	 Monthly 5S training for all employees at the plants in Yeosu and Ulsan, incorporated into each department's autonomous safety management activities Revisions to 509 internal work SOPs completed, along with the re-assessment of 222 risk assessments
			Promote safety awareness and culture	Real-time monitoring of incident via emergency contact networks and sharing of cases across all business sites to prevent recurrence at other sites
	Risk of fire or explosion (including prolonged shutdowns or major operational disruptions)	II	Promote safety awareness and culture	Company-wide and site-level monitoring of preventive activities, with monthly reporting to the CEO Sharing injury-related accident cases across sites (4 internal, 4 external cases)
			Spreading safety leadership	Risk assessments conducted on 18 high-impact accident scenarios during regular Safety Committee meetings
	Risk of damage caused by product defects	L	Chemical Risk Assessments	Safety, health, and environmental reviews conducted during product development stages to prevent risks in advance (no significant issues found in the chemical substance pre-review)

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^{*} L (No level): This refers to risks that were assessed as having relatively low likelihood and impact during the company-wide risk evaluation, and were therefore not assigned a rating. These risks are managed at the team level.

S Company-wide risk management system

Division	Risk factors	Risk level*	Response strategies and action taken in 2024	
	Risk of safety accidents in laboratories and similar facilities	L	Operation of safety and health committees and budgeting for SHE programs	Operation of regular safety and environmental meetings for preventive measures and workplace improvements (e.g., expansion of safety equipment) Operation of dedicated safety and health teams and plans and execution of related budgets, resulting in no major safety or health issues
			Safety and health training to prevent accidents	Monitoring of internal safety training completion and compliance with Safety and Health education requirements
		L	Regular risk assessments	Headquarters-led cross-inspections and safety assessments
Qcells	Risk of fire, leakage, or explosion caused by hazardous substances in use		Linking compensation of key executives with performance	Management of environmental and safety KPI dashboard
			Evaluation of Process Safety Management (PSM) implementation	• Consulting by external safety experts - Upgrade of Jincheon Plant's PSM grade from S to P
			Strengthening emergency preparedness through drills	• Implementation of emergency response drills in both the first and second halves of the year
	Risk of occupational accidents due to harmful or hazardous factors	L	SHE policies	• Update of company-wide SHE regulations and standards
			Development of a proactive safety management system	Operation of a guideline for regular risk assessment meetings Operation of a mobile app for site-based safety management and recognition of outstanding departments through company-wide SHE performance awards Awarding of zero-accident sites and distinguished contributors
			Safety culture assessment	Implementation of safety culture assessment by external professional agencies
			Spreading safety leadership	Biannual performance evaluations of supervisors Biannual safety competency training programs for supervisors
Insight	Risk of recovery costs and losses in the event of human or property damage	L	Regular risk assessments and improving risk factor	Biannual site safety evaluations and inspections
	Financial Exposure in the Event of a Serious Accident	III	Enhancement of risk identification and mitigation activities	Establishment and ongoing revision of safety and health systems and legal documentation in compliance with the Serious Accidents Punishment Act No serious industrial accidents occurred during the year

^{*} L (No level): This refers to risks that were assessed as having relatively low likelihood and impact during the company-wide risk evaluation, and were therefore not assigned a rating. These risks are managed at the team level.

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Reinforcing Safety Leadership

Spreading safety leadership | Hanwha Solutions promotes safety leadership initiatives to instill a companywide safety mindset and build a self-directed safety culture.

The **Chemical Division** holds a regular monthly Safety Committee meeting led by Production & Safety Generalization(CPO/CSO). This committee includes all executives, the leaders of the Technology Planning Teams, and the heads of SHE departments. Discussions focus on strengthening accident prevention efforts through activities such as reviewing risk assessment results for major hazards (e.g., fire, explosion, and leakage), conducting activities to prevent process safety risks, sharing near-miss cases, and reporting leading safety and health indicators from sites including Yeosu and Ulsan.

The Qcells Division operates a training program for supervisors at the level of leader to establish an autonomous safety management system. The program focuses on behavior-based safety and safety culture capacity-building. To improve training effectiveness, participants complete on-site written assessments and satisfaction surveys. In addition, a safety culture leadership training program was conducted for team leaders and supervisors at domestic sites. This program aims to strengthen accountability and awareness by enhancing both EHS functional capabilities and leadership competencies, which supports the effective promotion of positive safety leadership. In March 2024, the Insight Division held a hiking campaign for division heads, executives, and team leaders to strengthen leadership commitment to achieving zero injuries and to promote safety awareness among employees. This campaign was part of a company-wide initiative to promote unity and shared responsibility under the goal of achieving zero serious accidents. In addition, a safety workshop was organized for the CSO, the corporate Safety & Health Support Team, and safety and health managers from each site. The workshop included communication sessions and team-building activities under the theme of "Safety First" and strategies for risk response.

Safety Commitment Contest | To demonstrate and communicate its commitment to safety and health management, Hanwha Solutions held safety commitment contest at each of its sites, including the Qcells Division's manufacturing sites in Korea, as well as the Chemical Division's R&D center, and plants in Yeosu and Ulsan. In particular, the Chemical Division conducted site-focused, participatory activities such as presenting awards to outstanding suppliers, reflecting a collective commitment to achieving zero injuries.

Sending Safety and Health Letters | To enhance safety awareness among all employees, the Chemical Division distributed a safety and health message written by the Production & Safety Generalization(CPO/CSO). This initiative reflects the Production & Safety Generalization(CPO/CSO)'s commitment to building a site-based, autonomous safety management system and to promoting a strong safety culture aimed at achieving zero accidents and zero injuries. Meanwhile, the Qcells Division promotes safety awareness among employees by sharing internal safety bulletins and newsletters that help communicate safety and health-related information and key issues across the organization.

Safety and Health Activities with Leaders | To strengthen the implementation of our autonomous safety management system and establish a strong safety culture, the **Chemical Division** operates a Safety Leadership Coaching Program.

This program is structured so that higher-level managers regularly review and provide feedback on the safety management activities of their direct subordinates—for example, executives review team leaders, team leaders review managers, and section chiefs review engineers-in-charge. The program is implemented across all organizational units, including functional groups, departments, and work teams. This process gives managers direct insight into on-site safety and enables them to strengthen self-directed safety practices by addressing challenges and driving improvements. Reinforce the implementation of self-directed safety measures by addressing challenges and supporting necessary improvements. In addition, to enhance the effectiveness of risk assessments through pre-task safety briefing and participatory training, the division conducts Toolbox Meetings (TBM) and Critical Task Observation (CTO) activities at the site level. Team leaders voluntarily take part in these on-site initiatives, actively contributing to on-site safety implementation and the elimination of potential hazards in advance.

The Qcells Division conducts pre-task Tool Box Meetings (TBM) for hazard prediction training and monthly risk assessment meetings led by plant and center managers to continuously identify and address key risk factors. Each team analyzes safety-related incident and inspection findings to develop a set of action promises tailored to each site or team. These serve as the basis for setting behavioral safety goals and promoting autonomous safety practices. To strengthen practical safety capabilities, new and junior employees conduct joint site inspections with their team leaders to identify hazards. At the team level, supervisors, including team leaders, unit heads, and shift foremen, actively remove site-specific risks and manage standard operating procedures (SOPs) to ensure workplace safety.

Regular safety and health meetings | Hanwha Solutions regularly holds safety and health meetings through various consultative bodies composed of key executives at each business site. The Chemical Division operates the Safety & Health Management Committee and the Safety Committee to discuss key safety and health issues at both the company-wide and site levels and to establish appropriate response measures. The Qcells Division organizes and runs a range of risk assessment meetings that serve as communication channels for improving and evaluating potential hazards, gathering feedback on safety and health matters, and making timely decisions on emerging issues. The Insight Division holds regular safety and health meetings attended by key executives from each business unit, site-level safety and health officers, and relevant team leaders to share on-site perspectives.

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Strengthen safety communication I To promote a strong safety and health culture, the Chemical Division runs an internal campaign titled "Exploring Our Safety Culture", which shares with all employees best practices in autonomous safety initiatives, accident prevention, and safety culture development, along with key messages emphasized during the Safety Commitment Contest.

Additionally, the division summarizes key points from regularly held Safety & Health Management Committee and Safety Committee meetings through SHE Message Share bulletins. These are distributed in locations accessible to all employees, including those from suppliers, so they can easily access important safety and health updates.

The Qcells Division communicates the CEO's strong commitment to safety to all employees and stakeholders across its business sites, including suppliers, through CEO messages. To enhance employees' understanding of safety regulations, the division has developed and distributed the EHS Guidebook and Handbook for High-Risk Construction Work. In March 2024, it also launched an open communication channel within the EHS system, creating an environment where all stakeholders can freely share opinions on safety, health, and environmental issues.

Additionally, regular EHS conference calls are held to promote the early adoption of company-wide EHS policies, share best practices, and strengthen collaboration between headquarters and individual sites.

Visible Felt Leadership (VFL) activities I The Chemical Division operates Visible Felt Leadership (VFL) activities to reinforce leadership commitment to safety and enhance communication with employees on site. As part of this initiative, executives visit work sites to conduct safety observations and engage in safety conversations. These activities are based on five core principles of VFL, including realizing visible leadership and conveying belief and commitment to safety. In 2024, safety observation activities were conducted monthly by each responsible executive at the Yeosu and Ulsan sites, with one visit per team per month. Targets for observation were selected based on key work schedules, and visits were arranged in advance through coordination with the relevant teams. During these visits, the executive directly inspected the working environment, identified potential risks, and held practical conversations to listen to on-site difficulties and concerns. After the site visits, safety issues were shared and discussed in follow-up meetings with department heads and SHE supervisors, usually held in offices or meeting rooms. Each department also held safety briefings to review the day's work status, potential hazards, near-miss cases, recent improvements, and support needs. These briefings were accompanied by reviews of the site observations to support continuous improvement in company-wide safety standards. Starting in 2025, VFL activities will expand beyond routine safety inspections to place greater emphasis on delivering leadership safety messages and listening to feedback from employees on site.

Meanwhile, the Qcells Division operates the TOP 5 Risks initiative to prevent accidents at its sites. Based on accident analysis for each site, the top five risk factors are identified, and team leaders from operating departments (Production/R&D/Support) conduct on-site inspections to eliminate them. In addition, the division continues to implement proactive measures to prevent accidents caused by unsafe conditions and behaviors.

Enhancing safety and health assessment and follow-up for suppliers | The Chemical Division conducts annual safety and health assessments for on-site supplier companies and post-assessment for non-resident contractors within one month after project completion.

In collaboration with an external credit rating agency, suppliers are classified into seven grades based on their safety and health capabilities. The regular assessment take into account safety and health management efforts, accident history, a points-based system, and monitoring results from the internal safety support team. Suppliers with high grades are eligible for contracts and rewards, while those with lower grades receive support through a mentoring program led by the Safety & Health Team. Companies with frequent accidents or repeated violations are not eligible for high grades. Starting in 2025, the division plans to further strengthen its supplier safety management system by introducing a penalty system, reinforcing measures to prevent recurring unsafe behaviors, and enhancing communication with them.

The Qcells Division assesses contractor safety and health capabilities by reviewing their SH (Safety and Health) assessments results, allocation of safety management expenses, and participation in joint safety councils. Based on these assessments, it offers related education programs for the CEOs and safety personnel of suppliers, and provides support for the review for risk assessment recognition. Suppliers that require improvement are provided with guidelines and assistance to raise their assessments level. Companies that receive poor scores or fail to meet the minimum criteria may be subject to contract termination. In addition, the division is continuously working to enhance safety management with suppliers through regular workplace inspections, joint safety and health inspections, and monthly safety council meetings.

Supplier safety and health assessments | The Qcells Division conducted a comprehensive assessment of 87 suppliers, assessing their safety and health performance, allocation of safety management expenses, and participation in safety councils. The Insight Division also carried out safety and health assessments of its suppliers, completing assessments for a total of 49 suppliers in 2024, including 23 new and 26 existing partners.

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Fulfilling Safety and Health Obligations and Improving Competencies

Safety and health training for accident prevention | Hanwha Solutions regularly provides structured safety and health training programs tailored to specific target groups in accordance with the Occupational Safety and Health Act and other relevant regulations.

The Chemical Division offers a combination of online and in-person training to relevant personnel. The Qcells Division conducts annual training needs assessments to enhance effectiveness and uses the results to systematically design the direction, topics, and methods of its training programs.

The Insight Division provides regular safety and health training and job-specific education to employees and supervisors in the first and second halves of each year, helping to prevent industrial accidents and raise awareness of safety and health.

Period	Target group	Training content
Chemical		
2024.01	Employees	Understanding of the High-Pressure Gas Safety Control Act
2024.02	CEO/Executives	Psychology-based trends in safety management
2024.02	All staff	5S training
2024.04	Employees	Understanding of the Chemical Control Act
2024.05	Employees	Safe handling of heavy objects
2024.07	Employees	Understanding of the Occupational Safety and Health Act
2024.07	Employees	Understanding of fire and hazardous materials regulations
2024.07~08	Supervisors	Mindset training for supervisors
2024.08, 2024.11	Employees	Qualitative risk assessment (HAZOP)
2024.11	Employees	Electrical safety
Qcells		
2024.02~06	Employees	Risk assessment training for practitioners
2024.02, 07, 10	Employees	Understanding of environmental and safety systems
2024.06, 08, 10	Employees	Safety culture competency enhancement training
2024.10	Employees	Training on the Serious Accidents Punishment Act
2024.11	Employees	Training on the Process Safety Management (PSM) system
Insight		
H1/H2 2024	Employees	Regular safety and health training for supervisors/employees
H1/H2 2024	Employees	Safety and health role-based training for safety and health managers, etc.

Hanwha Solutions and Korea National University of Transport Sign MOU | The Chemical Division signed a memorandum of understanding (MOU) with Korea National University of Transportation. Through this agreement, the division supports employees who wish to participate in completing either a four-year program at the university's Future Convergence University and a two-year program at its specialized graduate school. As of 2024, the division has secured three employees with master's degrees in safety and expects to secure five additional degree holders (one master's and four bachelor's) going forward.

Expert Course Training on Serious Accident Punishment Act | The Qcells Division supported its safety and health personnel in participating in the "KEF Expert Program for Serious Accident Prevention", an eight-week course held from May 2024. The program aimed to strengthen internal and external capabilities for managing safety risks and to help minimize potential corporate losses by ensuring compliance with the Serious Accidents Punishment Act and other relevant regulations.

The Insight Division also supported the Head of the Safety and Health Office in completing a professional training program organized by Yonsei University Law School on the Act. The course ran from September 2024 to January 2025 and included advanced content on the latest developments and legal interpretations of the Act, as well as sessions for building networks and enhancing safety and health communication.

Safety and health training for suppliers | The Chemical Division participated in the 2024 Win-Win Corporation Program led by the Korea Occupational Safety and Health Agency (KOSHA), implementing initiatives to enhance safety and health management and prevent industrial accidents among internal and external suppliers. Ten suppliers each from Ulsan Plant 1 and Ulsan Plant 2 received consulting support focused on establishing selfregulated prevention systems centered on risk assessments, and identifying and addressing the three major types of industrial accidents and eight key risk factors.

The Qcells Division also participated in the KOSHA Win-Win Corporation Program to support its internal suppliers in identifying potential hazards and implementing corrective actions to improve safety and health management. All participating suppliers successfully received official recognition under the risk assessment certification program administered by KOSHA.

The Insight Division conducted legally mandated safety and health training sessions for its suppliers in both the first and second half of the year, covering topics such as onboarding training for new hires, MSDS education, and special-purpose training. A total of 3,520 supplier personnel completed the training across 1,354 sessions.

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Strengthening emergency preparedness through drills | Hanwha

Solutions conducts company-wide emergency drills to ensure that employees can respond promptly and systematically in the event of an emergency.

The Chemical Division has established and maintains site-specific emergency response manuals for work suspension and serious industrial accidents to enable swift action by all employees. Emergency drills are conducted twice a year, once in the first half and once in the second based on each site's emergency response procedures and safety and health plans. In 2024, the Yeosu site conducted a joint emergency rescue drill with the Yeosu Fire Station, while the Ulsan site held a joint drill at Ulsan Plant 1. The R&D center conducted its own fire drills and conducted training for internal firefighting teams across five buildings. After each drill, the entire response process is reviewed and areas for improvement are analyzed to implement structured enhancements, which in turn strengthen the effectiveness of the company's emergency response system.

The Qcells Division assesses potential impacts of emergencies on surrounding communities and establishes Chemical Accident Prevention and Management Plans to minimize risks. These plans are communicated in advance to local stakeholders

Emergency drills are conducted twice a year at manufacturing sites and R&D centers, following standardized procedures. Any issues identified during drills are immediately addressed and reflected in future trainings. Each site develops customized scenarios based on its specific risks to ensure a tailored and effective response system. In 2024, drills were conducted based on chemical fire and explosion scenarios. All exercises were executed systematically, and post-drill reviews led to actionable improvement plans to strengthen emergency response capabilities.

The **Insight** Division has developed a range of emergency response manuals, including the Safety and Health Management Manual, the Workplace Safety and Health Management Regulations, and the Emergency Response Manual. These manuals are prepared based on the characteristics of each site and structure of the emergency response organization, including scenario-based plans, emergency contact networks, and individual roles and responsibilities by type of emergency. Based on these manuals, the division conducts emergency response drills at least once a year.

Emergency Drill Conducted by the Insight Division in 2024





Entering a Safety Management Agreement | The Chemical Division

signed a memorandum of understanding (MOU) with the Korea Gas Safety Corporation to enhance safety management systems for petroleum and chemical facilities and to promote ESG management practices. The partnership aims to upgrade inspection standards and methods and transition to a data-based operational framework.

Under the agreement, the division has introduced a risk-based inspection methodology to support preventive maintenance of facilities. As of now, the second phase of implementation has been completed. and the third phase is scheduled for completion in 2025, with a total investment of KRW 2.084 billion.

Going forward, the Chemical Division will continue to establish strategic support systems to enhance its safety management practices. It also plans to implement a mid-to-long term roadmap for IT-based safety management solution, enhance safety levels using advanced diagnostic techniques, promote the exchange of safety technologies and human resource development, and introduce win-win programs for suppliers.

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Workplace health management activities | The Chemical and Qcells Divisions have established and operate comprehensive workplace health management policies to ensure systematic health oversight for employees and those from suppliers. These policies include conducting regular health checkups, managing suspected cases, and assessing and controlling risk factors related to musculoskeletal, cerebral and cardiovascular diseases. In addition, each site conducts semi-annual workplace environment diagnoses to identify harmful substances and implement preventive measures for employee health protection.

The Insight Division establishes workplace environmental diagnosis plans in accordance with legal requirements and conducts regular diagnosis accordingly. To prevent musculoskeletal disorders, the division identifies highrisk tasks and implements appropriate control measures. It also provides ongoing support to protect the health of employees working outdoors, including measures to prevent heat- and cold-related illnesses.

Workplace Health Management Activities

Division	Health management activities
	In-house inspections of rest areas and provision of humidifiers to maintain appropriate humidity levels
	Individual attenuation testing for hearing protection devices and distribution of customized earplugs
	Noise mapping and installation of warning signs in high-noise areas
Chemical	Heat-related illness prevention (e.g., measuring perceived temperature, distributing emergency kits, sending SMS alerts during heatwaves)
	Issuance and management of health monitoring cards for designated employees
	Musculoskeletal disorder prevention training
	Mental health awareness training organized by public health centers
	Health counseling and follow-up checkups for employees with suspected cases
Ocells	Job fitness evaluations for employees at high risk of cerebrovascular or cardiovascular disease
ycells	Job stress assessments
	Emergency response (CPR) training
	Workplace environment diagnosis
Insight	Investigation of musculoskeletal risk factors
	Health management during extreme weather periods (e.g., heat waves, cold waves)

Health care programs | Hanwha Solutions operates a variety of health promotion programs aimed at preventing illness and improving quality of life by supporting the physical and mental well-being

of employees. These programs are informed by best practices from exemplary workplaces recognized by the Korea Occupational Safety and Health Agency (KOSHA).

The Chemical Division conducts special health checkups for employees exposed to hazardous substances during manufacturing processes and offers various health care programs such as psychological counseling for individuals with suspected case. The division also supports both regular and comprehensive health screenings for employees and their spouses, continuing its efforts to enhance employee health and well-being.

The Qcells Division runs health care programs to create a healthy workplace environment. These include customized programs such as smoking cessation, healthy eating, alcohol moderation, weight management, and psychological counseling. A full-time health manager is based at the onsite health office, offering regular consultations, distributing health newsletters, and providing lowfrequency stimulators to support employee wellness. Comprehensive health checkups are also provided for employees and their spouses, along with nutritional supplements for pregnant employees, as part of the division's ongoing efforts to promote

The Insight Division identifies eligible individuals in advance and conducts both general and special health examinations. In particular, pre-placement health checkups are conducted for employees assigned to tasks requiring special examinations under the Occupational Safety and Health Act. This process helps evaluate their fitness for the job and detect any health conditions or risk factors that may require preventive measures before work begins.

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Promoting Safety Awareness and Culture

Establishment and implementation of safety rules | The Chemical

Division established a set of eight mandatory safety rules called the Safety Golden Rules in 2022, based on the results of a company-wide employee vote. These rules are required to be followed by all employees and suppliers and are shared across the organization via on-site bulletin boards and online platforms. They are also communicated to employees from suppliers through safety training sessions for site entrants and postings on bulletin boards. To emphasize the importance of these rules and raise awareness, training is conducted using case studies of rule violations. Additionally, the existing monitoring process has been revised to promote autonomous compliance with the rules.

The **Qcells** Division has established a set of ten mandatory safety rules called Safety Commitments implemented them company-wide. These commitments are regularly communicated to employees through risk assessment meetings, TBM (Tool Box Meeting), and posted in areas frequently accessed by employees to raise awareness. Supervisors promote a strong safety culture through routine inspections aimed at maintaining a safe and comfortable work environment, while the head of safety and health management oversees system-wide operations and continuous improvements.

The Insight Division established and began implementing workplacespecific safety and health (hygiene) regulations in 2025. These essential rules are tailored to the unique characteristics of each site and are designed to prevent accidents. All employees are expected to understand and voluntarily follow them to help build a strong safety culture.

Safety culture assessment | The Chemical and Qcells Divisions conduct safety culture assessments targeting both employees and suppliers. These assessments utilize the ECOYES Will 2.0 Tool, Hanwha Group's safety culture assessment framework, which comprises 50 questions across five categories, including safety leadership, routine safety management, and line-level accountability. Based on the results, each site identifies its current safety culture level and establishes improvement plans accordingly.

To promote a proactive safety culture, the **Chemical Division** conducted interviews with employees at various organizational levels. All heads of Production Departments and selected team leaders were interviewed to gather feedback on the effectiveness of proactive safety management activities, areas for improvement, and support needs. Based on these insights, the division established 2025 targets and action plans for proactive safety management, along with plans to operate leading safety culture indicators.

The Qcells Division commissioned an external professional organization to conduct an objective safety culture assessment. The tool was designed by analyzing both **Hanwha Group**'s internal assessment framework and the methodology used by the external organization. Following the survey, a comprehensive analysis was carried out by integrating the survey results and follow-up in-depth interviews. To enhance analytical accuracy, the final assessment also incorporated on-site documentation and monitoring. Based on this, strategic directions and key tasks for improvement were established. The safety culture level was quantified using indicators of employees' awareness, attitudes, and behaviors related to safety. Areas requiring improvement were identified, and concrete actions are now being implemented to enhance the overall safety culture.

Win-Win Cooperation Between Large Companies and Small and Medium-Sized Enterprises | The Chemical and Qcells Divisions participate in the Win-Win Cooperation Between Large Companies and Small and Medium-Sized Enterprises (SMEs) led by the Korea Occupational Safety and Health Agency (KOSHA) at all business sites. Through this program, the divisions provide risk assessments and technical support to their suppliers.

The Chemical Division offers consulting services to help suppliers independently enhance their safety standards by supporting the establishment of safety and health systems based on risk assessment. In collaboration with external professional organizations, the division also provides training programs to strengthen the capabilities of suppliers' safety managers.

A supplier-specific safety and health evaluation system has been established to ensure continuous assessment and management. To promote active participation in safety and health initiatives, the division also carries out supplier mentoring program, runs best practice contests, and operates a recognition and reward program for outstanding suppliers. At its plant in Ulsan, the Chemical Division participated in Win-Win Cooperation Between Large Companies and Small and Medium-Sized Enterprises (SMEs) selected specific suppliers, and identified consulting tasks such as establishing autonomous, risk assessment-based prevention systems and analyzing the three major accident types and eight key risk factors. Through the implementation of these tasks, the division supports suppliers in building autonomous and systematic safety and health management systems.

The Qcells Division has developed the Supplier Environmental, Safety, and Health Management and Evaluation Guidelines to enhance supplier capabilities. Suppliers are evaluated regularly, and the results are reported to the division's safety and health general manager. In the event of an industrial accident, a reporting system is in place to ensure that the responsible safety and health manager at the supplier company immediately informs Qcells Division.

The division also operates regular consultative bodies with on-site suppliers and conducts joint safety and health inspections on a quarterly basis to proactively manage safety risks. In addition, various activities, such as environmental, safety, and health quiz competitions, are implemented to raise safety awareness and improve suppliers' overall EHS standards.

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Safety, health, and environment (SHE) awards | Hanwha Solutions operates a company-wide SHE award program to encourage voluntary participation in safety and health activities and promote a sense of responsibility among employees. The Chemical Division invites submissions of outstanding safety and environmental achievements from each business site and selects awardees through a two-step evaluation process, targeting both teams and units that have demonstrated exceptional performance. In 2024, the division held an award ceremony recognizing three teams and three units that contributed to achieving zero accidents and zero injuries. The ceremony served as a platform to motivate employees by encouraging voluntary engagement and celebrating their contributions.

Chemical Division SHE Award - Team

Category	Award-winning teams	Award highlights
Grand Prize	Yeosu PE Production Team 2	Responding effectively to safety and environmental issues and advancing autonomous safety management systems to achieve zero accidents and zero injuries
Top Prize	Yeosu PVC Production Team	Identifying and improving on-site process hazards to prevent potential incident
Top Prize	Ulsan PVC Production Team 2	Eliminating safety and environmental risks through process improvements and detecting hazards early to help prevent accidents

Chemical Division SHE Award - Unit

Category	Award-winning teams	Award highlights
Top Prize	Ulsan Plasticizer Production Team Group D	Improving cleaning procedures to eliminate DOTP Haze Improving by replacing deionized water (DW) with firefighting water (FFW) for fire suppression capability in the standby air pollution control facility
Excellence Award	Yeosu TDI Production Team 1 – Group C	Increasing waste processing capacity by improving heat exchanger performance in the TRT process Reducing waste by increasing TDA recovery from TDA-containing waste
Excellence Award	Ulsan PVC Production Team 1 – SPVC/MPS1 Process,Group A	Demonstrating excellence in autonomous safety management through activities such as Touch & Call and near-miss Preventing abnormal polymerization in the MPS-1A process by detecting and taking emergency action on a Press Unit TRIP in the polymerizer during operation

The Qcells Division runs an EHS award program to strengthen its safety culture by recognizing outstanding environmental, health, and safety (EHS) performance. Recipients are selected monthly based on the Best of Best criteria, which recognize individuals or sites that have resolved major EHS issues, achieved the "3 Zero" targets (zero accidents, injuries, and violations), or demonstrated excellence in daily site inspections.

Qcells Division EHS Award Summary

Category	Awardees	Award highlights
Outstanding EHS contributors	4 individuals	Contributing to accident prevention by addressing major internal and external EHS issues
TF100	8 business sites	Achieving the 3 Zero targets (zero accidents, zero injuries, and zero violations)
Monthly Best of Best	50 teams	• Being selected through daily on-site inspections as part of the Monthly Best of Best program

In 2024, the Insight Division conducted an award program for outstanding safety and health video production. Each site created videos related to safety and health, and the Safety and Health Office reviewed the submissions and selected the best-performing sites for recognition. This initiative served to promote diversity in safety and health activities and to increase employee engagement and participation.

Collecting safety and health feedback from suppliers | The Chemical Division operates a supplier council to collect safety and health feedback and respond promptly to supplier suggestions. In 2024, 12 suggestions were accepted and resolved, including requests to re-share hazardous factor data from special health checkups and to invite certified instructors for Chemical Control Act training, Additional feedback is collected through grievance boxes, a supplier communication platform, and CEO-led roundtable meetings. All submitted suggestions have been fully addressed, achieving a 100% resolution rate. The Qcells Division collects supplier feedback through monthly supplier council meetings. In 2024, five suggestions were submitted and successfully addressed. Notable improvements include the purchase of industrial waste containers and the implementation of temporary access measures. The Insight Division operates multiple communication channels to collect feedback from supplier managers and employees. These include workplace safety and health meetings and a continuously available suggestion box. All grievances received were addressed through proactive improvement measures, achieving a 100% resolution rate.

Grievance Channels by Division

Division	Grievance handling channels	No. of grievances received	No. of grievances resolved	Key issues addressed
Chemical	Operating regular supplier council meetings Operating grievance submission boxes Operating supplier communication platforms Organizing CEO roundtable meetings	12 cases	12 cases	Installing additional convex mirrors to ensure visibility of vehicles in both directions at the central gate Addressing the risk of slipping due to water accumulation in the annex building's supplier area
Qcells	Operating regular council meetings Operating safety and health suggestion boxes, etc.	5 cases	5 cases	Requests for grease purchase, belt replacement, etc. Request to improve handling of domestic waste loading tasks
Insight	Operating safety and health meetings Operating safety suggestion boxes Operating labor-management councils Operating the Occupational Safety and Health Committee Operating safety and health councils, etc.	83 cases	83 cases	Request for shade installation at temporary rest areas in work zones over water Request to purchase iceboxes to cope with high temperatures

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Establishing an Autonomous Safety Culture

Improving Risk Factors | The Chemical Division continues to identify and manage risk factors that may lead to serious industrial accidents, focusing on high-risk tasks. In 2024, the division strengthened its on-site risk identification efforts by implementing regular site inspections, with team leaders conducting more than 10 inspections per month.

In addition, the division has been operating the Safety Mileage Program—a revised version of the previous TOP suggestion system introduced in 2022. This program provides incentives to employees for their participation in risk identification and improvement activities, thereby encouraging voluntary engagement in safety practices. The Safety Mileage Program provides rewards by awarding mileage points based on the registration and evaluation of proposals that are classified as either "safety" or "near miss," including idea proposals such as theme-based safety suggestions and safety implementation proposals, including on-site suggestions.

For processes with a high risk of major industrial accidents, the Safety Committee conducts process safety hazard identification activities. High-risk factors identified by each team are reviewed with executives across all sites, taking into account process characteristics and work-related risks, and actions are taken to eliminate hazards based on the assessment results. The division also promotes a range of initiatives to strengthen preventive safety management systems by continuously identifying on-site risk factors, such as autonomous safety activities, 5S activities (sort, set in order, shine, standardize, sustain), and enhanced internal work safety practices. These include risk assessments and SOP improvements to prevent accidents in routine operations.

The Qcells Division regards safety not just as a mandatory obligation or regulation but as a core value that must be upheld voluntarily. Since the second half of 2023, the division has strengthened its line accountability system and initiatives for identifying potential risks. To establish a preventive and practical safety management system, frontline employees actively participate in identifying and addressing risks, enabling the development and implementation of effective safety measures. The division is also working to improve systems that support the ongoing development of a safety culture and is striving to make it more mature and sustainable across the organization. In addition, each site is enhancing safety awareness through a variety of activities, including 3J5S campaigns and safety guizzes.

Meanwhile, the **Insight** Division has established a structured process for proactively identifying and mitigating hazards and risks in accordance with the Serious Accidents Punishment Act. Each site conducts inspections twice a year. Based on the findings, the division continues to assess risks and establish corresponding improvement measures.

Implementation of the Right of Work Suspension | In accordance with the Occupational Safety and Health Act, Hanwha Solutions provides employees with the right to request a temporary suspension of work if they recognize a potential risk of an accident or injury during operations.

To ensure that all employees can easily understand and exercise it, the **Chemical Division** has clearly specified the right to suspend work in its safety and health regulations and Safety Golden Rules. Employees must immediately suspend work and report to their supervisor when they identify a potential risk. The supervisor then inspects the site, takes any necessary corrective actions, and resumes operations once the area is deemed safe. In 2024, a total of seven cases of the right of work suspension were exercised in accordance with these procedures.

The **Qcells Division** also defines the right of work suspension in its safety and health regulations and in the Safety Commitment, ensuring that all workers clearly understand the policy. Upon identifying a risk, employees must suspend the work immediately and notify their supervisor. Work resumes only after the supervisor confirms the situation and takes necessary measures. In 2024, a total of 72 cases of the right of work suspension were exercised.

The **Insight Division** actively supports the exercise of the right of work suspension by installing safety signage at worksites and providing regular training on the right of work suspension, starting from onboarding. These efforts aim to raise awareness of the right of work suspension and ease the hesitation employees may feel when exercising it. In 2024, six cases of the right of work suspension were exercised. All cases were verified by supervisors and appropriately resolved, resulting in a 100% resolution rate.

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Safety & Health Management

Process Safety Management (PSM) I The Process Safety Management (PSM) system is a government-certified safety management program designed to prevent major industrial accidents, such as explosions, fires, and toxic chemical leaks, at manufacturing sites that handle high-risk chemicals or operate hazardous processes. In accordance with the Occupational Safety and Health Act, the system is administered by the Ministry of Employment and Labor and the Korea Occupational Safety and Health Agency (KOSHA). PSM applies to workplaces that handle specific hazardous chemicals above regulatory thresholds or operate high-temperature or high-pressure processes. It is widely implemented across various manufacturing sectors, including oil refining, chemical, semiconductor, and solar energy industries. Each site's safety management practices are regularly evaluated through compliance assessments, with performance rated across four grades: P (Excellent), S (Good), M+ (Fair), and M- (Needs improvement).



Plaque of appreciation awarded for excellence in the 2024 PSM Matching Consulting Program



Award presented in recognition of being selected as an outstanding site in the 2024 PSM Matching Consulting Program

All three plants (1, 2, and 3) of the Ulsan site under the **Chemical Division** have consistently maintained the highest rating of P in PSM compliance assessments. As a PSM best-practice site, the Ulsan facility was also selected as a mentor organization for the "PSM Matching Consulting" program, which supports small-scale sites facing challenges in implementing PSM. Under this program, the division provided seven consulting sessions, covering topics such as best practices in PSM reporting and strategies for improving compliance levels

The **Chemical Division** will continue its efforts to maintain its high PSM rating, and also supports smaller facilities through consulting and technical assistance, contributing to the advancement of industrial safety.

The **Qcells Division** has established a company-wide safety management framework based on the 12 core components of PSM, including process-specific risk assessments, safe work procedures establishment, emergency response planning, and safety training. In 2024, the Jincheon site received a P rating in its PSM compliance assessment and became the first solar manufacturer in Korea to be officially recognized for excellence. This achievement reflects the division's ongoing efforts to strengthen safety capabilities through onsite safety practices, hazard mitigation systems, and training programs involving employees.

Moving forward, the **Qcells Division** will continue to implement safety initiatives aligned with PSM standards and promote a safety culture focused on prevention of accidents to ensure the long-term sustainability of its operations.

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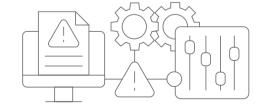
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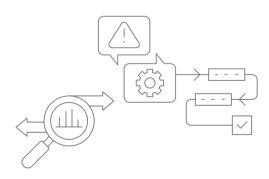




Integration with Company-wide Risk Management

Hanwha Solutions systematically manages safety and health risks by integrating them into our companywide risk management process. Each division identifies risks at the departmental level and assesses their severity using a company-wide risk assessment matrix. Relevant departments then conduct the initial evaluations and assign risk ratings. Based on these ratings, response measures are established and implemented, followed by effectiveness assessments and ongoing monitoring. Company-wide risk management activities and related improvement plans are reported to and approved by the board of directors once a year.

S Company-wide risk management system



Risk Assessment and Processes

Hanwha Solutions has made the 'Establishment of a safety- and health-first culture' a core objective, based on our ISO 45001-certified safety and health management system. To this end, we systematically review our annual safety and health performance, identifying risks and continuously analyzing activities to determine areas in need of improvement.

The **Chemical Division** is strengthening its capacity to systematically respond to safety and health risks, while regularly reviewing the effectiveness of improvement measures to mitigate safety and health risks. In particular, the sites in Yeosu and Ulsan have introduced a Risk-Based Inspection (RBI) system to enhance equipment inspection standards and methods. This initiative is being phased in to support a data-based safety management approach, with full implementation targeted for 2025. With this approach, the division aims to establish a world-class safety management system and proactively address facility-related risks while building a safety-centered work environment.

The Qcells Division identifies and addresses hazards and risk factors at its sites based on its 'Risk Assessment Meeting Operation Guidelines'. Regular and ad hoc risk assessments are carried out to continuously monitor the risk factors. Routine assessments are facilitated through a mobile application that supports real-time identification and swift action on safety issues at the site. Risk assessments are typically conducted using the 4M analysis (Man, Machine, Material, Method), and depending on the situation, additional methodologies such as checklists, HAZOP, and JSA are applied. Weekly updates on key environmental and safety management topics are shared across worksites. Regular evaluation meetings help ensure consistent application of the line-level accountability system. Employee engagement is actively promoted to foster a strong culture of autonomous safety management.

The Insight Division conducts systematic risk assessments to prevent safety risks in advance. Assessments begin at the start of new construction and continue on a biweekly basis to identify hazards and risk factors. Based on the findings, appropriate preventive measures are established. Proposed measures are reviewed by supervisors and safety managers and finalized by the site director to ensure implementation. In addition, all GES Business office sites conduct daily safety walkthroughs, while the Jade site under the PLS Business unit carries out weekly safety inspections. These on-site safety checks help uncover and promptly address potential risk factors to prevent workplace accidents.

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Summary of the 2024 Regular Risk Assessment Results - Chemical Division

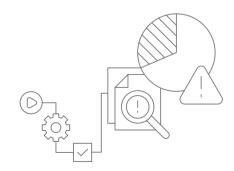
Category	Details
Participant	Chemical Division's Yeosu and Ulsan Plants
Evaluator	Operators, SHE supervisors, and management supervisors from each department
Method	Job Safety Analysis (JSA)-based task risk assessment
Results	100% adoption of standardized JSA forms and completion of JSAs for all internal tasks On-site participation led and coordinated by CTOs and supervisors Enhancement of JSA content based on analysis of near miss cases Completion of risk assessments for all 2,691 identified tasks Establishment of improvement action plans based on assessment results
Improvement actions	 All planned improvements to be completed by the first half of 2025 Key improvements: Equipment upgrades including installation of safety lifeline anchors

Summary of the 2024 Regular Risk Assessment Results - Qcells Division (Example)

Category	De	Details				
Participant	All processes at the Qcells Division's manufacturing sites in Korea					
Evaluator	Process engineers, EHS personnel, supervisors, and operators from each department * The evaluation results of the relevant department were further reviewed and revised by the EHS Team.					
Method	4M risk assessment					
Results	Risk factors	Improvement measures (improvement in risk rating)				
	Risk of collision with industrial robots during raw material loading	Installing safety mats that automatically stop equipment operation when stepped on (risk level reduced from 8 to 4)				
	Risk of hand or body entrapment due to tilting of cell transfer equipment during operation	Program logic improvement and installation of door interlocks (9 to 3)				
	Risk of burns from contact with high- temperature chambers during heater or equipment inspection	Installation of chamber surface temperature sensors and interlocks (8 to 4)				

Summary of the 2024 Regular Risk Assessment Results – Insight Division (Example)

Category	De	etails	
Participant	Insight Division's Jade site		
Evaluator	Supervisors, safety managers, and safety a	nd health officers	
Method	Frequency-severity method		
Results	Risk factors	Improvement measures (improvement in risk rating)	
	Fire risk from sparks during hot work	Removal of nearby flammable materials and placement of fire extinguishers (9 to 4)	
	Risk of heat-related illness for elderly employees during summer heat	Ensuring rest breaks and supplying water and salt tablets (6 to 4)	
	Fall risk due to lack of a two-person team during ladder work	Implementation of two-person work teams and verification of personal protection equipment use (6 to 4)	



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Occupational Safety and Health Risk Management

Safety review I Since 2024, the Chemical Division has delegated responsibility for the company-wide safety review to the safety and health teams at each site. This transition was intended to support the identification of deeper and more site-specific risk factors by better reflecting each site's unique characteristics and operational environment. With on-site safety teams now overseeing the evaluation process, the division is implementing more practical, on-the-ground improvements and strengthening the overall quality of its safety management.

The Qcells Division operates a risk assessment council to promote a culture of safety ownership. Through this council, the division identifies and addresses hazardous and risk factors across the organization and implements a structured risk management system. In addition, regular site-level communication on a daily, weekly, and monthly basis enables the identification and resolution of approximately 1,200 risk factors each year, supporting ongoing efforts to enhance safety and reduce risks.

Safety and Health Inspections Across Each Site | Hanwha Solutions systematically carries out a range of safety and health inspection activities to ensure the safety of our employees.

2024 Safety and Health Inspection Status

Inspection	Organized by	Frequency
Safety and environment performance reporting	Company-wide, site, department	Monthly
Site inspections	Site, department	As needed
Joint labor-management inspections	Site, department	Quarterly (Chemical/Qcells), as needed (Insight)
PSM	Site, department	As needed
Management system audits	Site, department	Annually
Statutory facilities inspections	Site, department	As needed
Process facilities inspections	Site, department	As needed
Industrial accident prevention	Company-wide, site, department	Monthly
Team-level inspections	Team	Daily
Verification of compliance with the construction safety and health log	Site	Quarterly
Technical guidance for accident prevention	Site	Monthly

CTO (Critical Task Observation) activities | The Chemical Division is actively promoting Critical Task Observation (CTO) activities, led by frontline supervisors familiar with site operations. These activities aim to proactively identify and address potential risk factors. Starting in 2024, the division incorporated the Job Safety Analysis (JSA) method into its CTO activities. JSA is a structured approach that breaks down tasks into steps, identifies potential hazards and accident risks at each stage, and defines preventive or mitigating actions in advance.

The JSA method was piloted at the plant in Yeosu and within the maintenance department from August to December 2024. As a result, all previous work procedures were fully integrated into the new JSA format, and risk assessments were completed for all 1,766 targeted tasks. Among these, 42 cases were identified as needing improvement. Of these, 28 cases (67%) have been addressed, while the remaining 14 are planned to be resolved by the first half of 2025. Major improvements included facility upgrades such as the installation of safety lanyard anchors. To further enhance the systematic identification and management of risk factors, the division plans to provide JSA-related training throughout 2025. This will include theoretical training for all employees, hands-on sessions for supervisors, and coaching programs for each department on JSA documentation. Through these efforts, the division aims to proactively identify potential risks and implement effective accident prevention measures, contributing to the establishment of a strong safety culture.

The Qcells Division analyzed company-wide incident data from the past three years and identified five major types of accidents, such as collisions, slips, and entrapments. To proactively identify the risk factors behind these incidents and prevent their recurrence, the division has strengthened safety communication through mobile applications and social media channels. A mobile app, widely used by both site managers and on-site personnel, supports safety inspections based on checklists covering workplace organization, secured walkways, and unsafe behaviors or conditions. Users can submit inspection results along with photos, which allows for prompt corrective action in areas with potential safety risks. All follow-up actions are documented and shared in the app, supporting real-time monitoring and continuous improvement in site safety.

2024 JSA-based Improvement Implementation Status

Category of im- provement action	Overall im- provement implementa- tion	Facility im- provements	Establish- ment and revision of internal regulations	Changes to operating and man- agement procedures	Check- list creation	Safety and health signage	Train- ing	Personal protective equip- ment use	Oth- ers
Targeted cases	42 cases	14 cases	-	-	2 cases	1 case	2 cases	-	23 cases
Completed cases	28 cases	5 cases	-	-	0 cases	1 case	2 cases	-	20 cases
Completion rate	67%	36%	-	-	0%	100%	100%	-	87%

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Chemical Risk Management

Chemical Risk Assessments | To ensure a safer working environment for all employees, Hanwha Solutions conducts systematic risk assessments of all chemicals used across the company.

The **Chemical Division** has adopted a chemical assessment methodology called CHARM (Chemical Hazard Risk Management) developed by the Korea Occupational Safety and Health Agency (KOSHA), to quantitatively evaluate the hazards of all chemicals handled at its sites. A total of 8,337 chemicals used at the Yeosu and Ulsan sites have been assessed. Among them, three processes, although within legal limits, were classified as highrisk based on internal standards and will be planned to reduce the risk associated with the chemical substance over medium to long term. Assessment results are shared with relevant departments. When there are changes in exposure levels or hazard classifications, re-assessments are conducted to help minimize chemical risks. The **Qcells Division** is also managing risk of chemical substances using the 4M methodology and plans to adopt the CHARM method starting in 2025 to establish a more sophisticated risk management framework.

Maintaining ISO 45001 Occupational Health and Safety Management System Certification

Maintaining ISO 45001 certification and related certifications | The Chemical Division has obtained ISO 45001 certification for our occupational health and safety management system across all its sites and consistently maintains the certification. This demonstrates the company's systematic approach to managing occupational safety and health risks in accordance with international standards, identifying and eliminating risk factors in advance, and operating with the highest priority on the safety and health of its employees.

The ISO 45001 certification also reflects our clear accountability for safety and health management and serves as a clear demonstration of the company's credibility with customers and stakeholders. Based on this system, **Hanwha Solutions** is focused on preventing safety incidents and is continuously implementing practical improvements to strengthen the safety culture.

Chemical risk assessment procedure

Step.1	Step.2	Step.3	Step.4	Step.5	
Selection of assessment targets (processes and chemicals)	Determining the probability level	Determining severity level	Determining overall risk	Establishing and implementing risk reduction measures	
 Selecting assessment targets and classifying assessment units Collecting relevant data (e.g. work environment measurement result table, SDS, etc.) 	Using work environment measurement result table The combination of handling volume, acidity, volatility are utilized if the measurement results are unavailable	Checking whether the substance is carcinogenic, mutagenic and reprotoxic [CMR] substance Using occupational exposure limits [TWA] and toxicity values (e.g. acute toxicity, skin corrosion, specific target organ toxicity)	Assessing whether the level of risk is acceptable Requiring risk mitigation for levels 6 or higher and immediate suspension of operations for levels between 12 and 16	Developing mitigation plans for risks and setting initiatives Implementing engineering and administrative control measures	

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Occupational Safety and Health Indicators

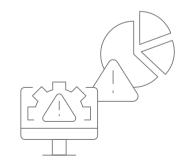
Hanwha Solutions has established occupational safety and health indicators to objectively assess safety levels across our business divisions. These indicators help us proactively identify recurring accidents and risk factors, and develop effective prevention and response strategies.

Division	Туре	Safety and Health indicators	2024 target	2024 performance	2025 target
	Accident	Fire/Explosion/ Leakage	0 case	0 case	Zero accidents
		LTIR	0	0.41	0
Chemical	6.61	Safety leadership ¹⁾	100	96	100
	Safety culture	On-site participation	100	100	100

¹⁾ Evaluation of leaders' involvement in safety management and their influence on employees: Pathological (0-70), Reactive (71-77), Structured (78-82), Proactive (83-89), Benchmarking (90-100)

Division		Туре	Safety and Health indicators	2024 target	2024 performance	2025 target
		Injuries accident	LTIR	0.83	0.55	0.55
		Process accidents	Fire/Explosion/ Leakage	0 case	0 case	0 case
Qcells	Accident Environmental safety inspection and improvement Safety culture Near-miss incident management	safety inspection and	Improvement rate	100%	100%	100%
		Reporting transparency	1.1 and above	0.65	1.1 and abov	

Division	Safety and Health indicators	2024 target	2024 performance	2025 target
	Serious accidents	0 case	0 case	0 case
	Safety rounds by the CSO	8 times	11 times	14 times
	Safety and health support inspection	19 times	20 times	30 times
Insight	Safety and health evaluation inspection in response to the Serious Accident Punishment Act	15 times	16 times	26 times
	Safety and health Meetings	12 times	12 times	12 times
	Accident-free commitment contest	1 time	1 time	1 time



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Occupational Safety and Health Goals

Hanwha Solutions establishes an annual company-wide occupational safety and health plan, which is reported to and reviewed by the Board of Directors. To build a global-standard safety management system, we have developed a three-phase roadmap consisting of creating a safety mindset, embedding safety in operations, and reinforcing safety practices as part of our long-term strategy through 2030.

Category	Establishment (2023 - 2024)	Internali	zation (2025 - 2027)	Execution (2028 - 2030)
Strengthening safety leadership	Strengthening management and manager-centered safety leadership Enhancing safety leadership beyond hierarchy to the individual level Strengthening individual evaluations of safety and health managers and supervisors	Conduct change management of site manager safety leadership Strengthening the implementation of autonomous safety management Strengthening the continuous implementation through in-house safety leadership enhancement program	Holding executive and team leader safety forums Distributing safety publications to enhance safety insights Establishing safety leadership behavior standards for supplier supervisors Implementing safety leadership activities among suppliers	Strengthen overall leadership of employees Establishing a robust safety leadership system Motivating on-site supervisors for safety leadership Strengthening safety followership of site workers under the leadership of on-site supervisors Reflecting safety leadership outcomes in supplier evaluations
Encouraging voluntary on-site safety participation	Implement risk assessment centered on high-risk tasks and processes Encourage the discovery of site-centered hazards and risk factors Improving supplier evaluation systems to expand win-win-based safety management	Implementing on-site employee-led risk assessments Conducting voluntary identification and improvement of workplace hazard risk factors Supporting the establishment of safety management systems for suppliers Enhancing hazard risk factors identification	Strengthening operational safety management Gradually shifting operator of the safety PDCA cycle Introducing and promoting the work suspension system Distributing management-led safety message and conducting trainings (maintain)	Conduct active and voluntary preventive management Establish voluntary safety management system for suppliers Promoting an environment that voluntarily share best practices of safety across all sites
Promoting safety awareness and culture	Enhancing safety meetings and communication led by management Emphasizing the importance of complying with basic safety rules Diversifying promotional channels and contents, including safety and health video production	Reinforcing site- and team-centered safety awareness activities (e.g., meetings, events, awards programs) Strengthening systems for identifying, eliminating, and sharing risk factors Promoting Focus on Safety activities (e.g., pre-task reviews and pre-work safety checks)	Enhancing the operation of safety rules (e.g., Safety Golden Rules) Diversifying process risk assessment techniques Sharing PSI (Process Safety Indicator) events across sites	Establishing a culture of open, two-way communication across the company, worksites, and teams Enhancing job risk assessments Gradually expanding advanced HAZOP to all sites Expanding activity to prevent process safety risks Achieving the highest PSM rating (Level P) at all sites
Enhancing safety competencies	Conduct training on the importance of improving harmful risk factors for supervisors (CTO & JSA) Improving training effectiveness through visual materials such as videos or photos Strengthening inspections in response to the Serious Accidents Punishment Act	Improving hazardous risk factors centered on on-site employees, and providing training on risk assessment techniques Building competency for developing and revising SOPs based on risk assessments Enhancing safety competencies of junior employees	Building risk assessment capabilities Expanding access to safety-related information Conducting site-wide annual safety campaigns and theme-based campaigns targeting high-frequency, high-severity incidents Establishing an engineering career path	Learn risk assessment methods and share best practices among site workers Enhancing risk prediction capabilities Providing education on how to establish and implement autonomous safety management plans Providing training to strengthen safety followership site workers
Conducting safety and health investments	Invest with a focus on legal compliance and upgrading old equipment Enhancing the system for identifying hazardous risk factors such as introducing mobile-based safety checklists	Investing in improvements for high-risk facte Upgrading the access management system (health information)	ors identified through risk assessments le.g., visitor management and provision of safety and	Promoting safety and health investments based on risk assessment results Enhancing the smart safety management system (e.g., immersive safety training and VR-based simulations
Lost Time Injury Rate (LTIR)	Chemical Division LTIR performance: 0.41 in 2024 Qcells Division LTIR performance: 0.55 in 2024	Chemical Division LTIR targets: 0.0 in 2025, 0.0 in 2026, and 0.0 Qcells Division LTIR targets: 0.5 in 2025, 0.3 in 2026, and 0.1		Chemical Division LTIR target: 0.0 in 2030 Qcells Division LTIR target: 0.0 in 2030

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OUR STORY

"Together with our suppliers, we build a path toward sustainable growth."

Hanwha Solutions identifies risks within the supply chain through ESG and safety and health assessments of our suppliers. Based on the results, we offer tailored consulting to enhance their overall capabilities of ESG.

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Governance

Supply chain management and reporting system I Hanwha Solutions' procurement and supply chain management, including supplier assessment, are overseen by the purchasing departments of each division. To systematically manage ESG risks within the supply chain, we have established an ESG Committee under the Board of Directors. This committee regularly reviews and deliberates on fair trade and shared growth policies, as well as key ESG initiatives related to the supply chain.



To enhance the safety and health level of its suppliers, the **Chemical Division** regularly reports the findings, results, and follow-up measures of supplier safety and health assessments to the Safety and Health Management Committee. The **Qcells Division** operates a Safety And Health Council to help suppliers improve their safety management and engages in ongoing discussions on related matters. In addition, it conducts separate safety and health assessments for suppliers.

Operation of the Subcontracting Internal Review Committee | Hanwha Solutions operated internal deliberation more than once in a month in accordance with the guidelines of the Korea Fair Trade Commission, with participation from each division's procurement team and legal department. This committee has been operated to promote a fair subcontracting culture and establish a foundation for mutual growth with suppliers. It convened regularly to conduct pre-assessment and follows-up the appropriateness of transactions, such as contracts with key suppliers, payments to be made, protection of technical data, thereby ensuring compliance with the Act on Monopoly Regulation and Fair Trade. This process helped us prevent risks, identify and resolve compliance issues at an early stage, and maintain sound business relationships with our suppliers. The committee operated until July 2024 and is scheduled to resume.

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Supply chain sustainability management policy | In the first half of 2025, Hanwha Solutions established our supply chain sustainability management policy. This policy is designed to proactively address potential ESG risks within the supply chain and to build a more sustainable supply chain.

Supply chain sustainability management policy

Supplier Code of Conduct | Hanwha Solutions includes provisions in supplier contracts requiring compliance with our Code of Conduct, which applies to all suppliers, including their subcontractors and employees. In addition, new suppliers are required to submit a signed statement confirming compliance, which helps define their legal and ethical responsibilities and fosters trust-based business relationships.

Supplier Code of Conduct

Supplier Code of Conduct

Revision		D	ecember 2024					
Purpose	Comply with supply chain ESG management evaluation requirements, such as the Corporate							
Key areas	Valuntary labor Protection of underage workers Adhere to working hours Wages and benefits Humane treatment Prohibition of discrimination and harassment Freedom of association	② Safety and Health Occupational safety Emergency preparedness The prevention of occupational accidents and diseases Occupational health Physically burdened work management Facility safety management Sanitation, food, and housing Safety and health training	Environment Acquisition of environmental permits Pollution prevention and resource reduction Hazardous substances management Solid waste Air pollution control Compliance with product-related chemical regulations Water resource management Energy and greenhouse gases Biodiversity conservation	Ethical business conduct Integrity Prohibition of unfair advantage Disclosure of information Protection of intellectual property Fair trade, advertising, and competition Protection of identity and prohibition of retaliation Protection of personal information Responsible resource management				
Scope of application		Hanwha Solutio	ns suppliers and employe	es				

Supplier selection and assessment policy | To provide customers with high-quality products, Hanwha Solutions has implemented a Supplier Management Regulations that clearly defines the roles and procedures of departments responsible for supplier selection and assessment.

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ESG Management in the Supply Chain

Risk identification and response strategy for supply chain sustainability | Hanwha Solutions identifies potential supply chain sustainability risks at the corporate level and across our business sites. Based on the likelihood of occurrence and potential impact, we classify risk levels and establish corresponding response strategies to minimize them. The implementation status of these strategies is managed based on 2024 performance data.

Division	Risk factors	Risk level*		Response strategies and action taken in 2024
Chanical	Supplier strikes (transportation, packaging, shipping) - Delays in packaging and shipping due to supplier strikes - Instability in the supply of raw and packaging materials - Increased volume of packaged goods and yard inventory - Sales disruptions due to customers' inventory shortfalls	L	Held supplier meetings and collected supplier VOC (Voice of the Customer)	Hosted supplier roundtables and regularly monitored market and supplier trends
Chemical	Production and supply disruptions due to shortages of raw materials	L	Conducted new supplier assessment and registration	Secured a stable supply of raw materials(e.g., urea solution, liquid carbon dioxide) with prior supply disruptions by sourcing new or alternative suppliers Enhanced price reasonableness through continuous follow-up of the composition, origin, and cost drivers of raw and auxiliary materials
	Maintenance delays due to equipment and parts shortages or late deliveries	III	Conducted new supplier assessment and registration	Identified alternative vendors and developed a master plan for localization
	Rising costs of raw materials and other supply chain risks due to market changes and geopolitical factors (e.g. pandemics, wars)	L	Monitored supply chain risk factors and the status of raw material supply	Convened cross-functional meetings (manufacturing, sales, procurement) in response to raw material supply issues
	Operational disruptions caused by non-fulfillment of contracts by logistics partners (plant/warehouse and transportation logistics)	L	Monitored logistics service provider performance and strengthened contract terms	Held regular meetings with logistics provider (plant/warehouse and transportation logistics) to monitor contract fulfillment and operational issues Specified compensation clauses in contracts for non-fulfillment by logistics partners
Qcells	Changes in production plans due to raw material supply issues	II	Monitored safety stock levels of key raw materials	Maintained safety stock levels of critical raw materials Reviewed alternative transport methods (e.g. ferry, air) for short-term supply issues Submitted purchase requests in a timely manner considering lead times
	Delivery delays to customers (modules/cells) due to vessel shortages or natural disasters	II	Secured vessel space in a timely manner	Secured vessel space in a timely manner through direct booking with carriers Secured stable freight capacity and rates through annual contracts with carriers
	Risks associated with alternative material procurement due to sole-vendor suppliers for raw materials	L	Reviewed Sole vendor materials and initiated Multi vendor	Coordinated with relevant departments to review the progress and timeline of multi-vendor development and assess the need for diversification when R&D requested import inspections for new materials. Reported quarterly on sole-vendor status by material and conducted urgent assessment of alternative suppliers
	Risks of non-compliance with the Framework Act on the Construction Industry and the Subcontracting Act	L	Fostered a Culture of Fair Trade	Monitored legal compliance in supplier selection and project implementation Established and revised standard contracts; conducted training on the Framework Act on the Construction Industry and the Subcontracting Act Continued monitoring of regulatory changes and legislative revisions
Insight	Construction delays and cost increases due to supplier insolvency or disputes	III	Supply chain ESG risk management	Revised supplier management policies and conducted due diligence during supplier selection Documented and embedded Lesson & Learned from past projects
	Cost increases and delivery delays due to supply chain instability	III	Conducted new supplier assessment and registration, and regular	Managed a supplier pool to monitor raw material and logistics trends, diversify suppliers, and establish strategic partnerships

assessments of suppliers

* L (No level): This refers to risks that were assessed as having relatively low likelihood and impact during the company-wide risk evaluation, and were therefore not assigned a rating. These risks are managed at the team level.

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Promoting Sustainable Procurement

Hanwha Solutions is committed to fostering a virtuous cycle through eco-friendly purchasing and minimizing negative environmental impacts by selecting products with lower carbon emissions. To this end, we provide Guidelines for Purchasing Eco-Friendly Products to suppliers and give purchasing priority to greencertified products.

Guidelines for Purchasing Eco-Friendly Products | To reduce carbon emissions generated across our supply chain. Hanwha Solutions provides suppliers with the Guidelines for Purchasing Eco-Friendly Products when requesting quotations. In accordance with the guidelines, suppliers are required to verify whether the materials being quoted qualify for government-certified eco-labels and to submit a list of eco-friendly materials and costs along with the relevant certifications. Green products include not only the eight categories certified by the Korean government but also other environmentally certified items. Examples of eligible items include readymixed concrete, steel plates and sheets, geotextiles, and architectural coatings. In addition, starting in 2025, we will include ISCC PLUS-certified materials in our packaging procurement, thereby expanding sustainable sourcing in line with international certification standards.

Green purchases aggregation system | Hanwha Solutions has established and operates a dedicated system to systematically manage our green purchase and related items. Suppliers are required to input the amounts of eco-friendly materials when submitting quotations through the company's procurement portal. Based on this data, we compile and report monthly purchase figures. The system enables quantitative tracking of green purchases, supports the expansion of procurement, and helps monitor improvements over time.

Green purchasing initiatives and management | Hanwha Solutions designates key green purchasing items by department and conduct ongoing reviews. The Procurement Team aggregates annual green purchasing records and promotes eco-friendly procurement through regional meetings and informational sessions with suppliers. To further reduce carbon emissions across the supply chain, we are gradually expanding eco-friendly products. In addition, we are considering granting extra points during supplier assessment to those who faithfully implement green purchasing practices.

In line with our eco-friendly purchasing strategy, Hanwha Solutions purchased a total of KRW 5.1 billion worth of eco-friendly products and services in 2024

Major Green Product Certifications

Excellent in

Reduction of

Standby Power

High-Efficiency

Equipment,

or Materials

Certification

Certification

Energy Machinery,

Energy Efficiency

Grade 1 or Higher

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Certification name Relevant legislation Environmental Eco-label Technology and Certification Industry Support Act · Act on the Promotion of Saving and Recycling of Good Recycled (GR) Resources Certification • Industrial Technology Innovation Promotion · Framework Act on Green Certification Low Carbon, Green Green Growth Environmental CO2 Low Carbon Technology and Certification Place and date of issue Industry Support Act · Act on the Promotion of the Development. Renewable Energy Use, and Diffusion of Certificate (REC) New and Renewable

Energy

Energy Use

• Energy Use

Energy Use

Rationalization Act

Rationalization Act

Rationalization Act

ISCC PLUS Certification



Products Managed by Responsible Departments

Procurement Team
Raw materials and equipment

General Affairs Team

Office supplies, electronics, rental items

Technology Planning Team

IT consumables and electronic devices

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Shared Growth Activities

Technical and Training Support

Component analysis support program | Hanwha Solutions operates a component analysis support program to help suppliers and customers reduce overall costs. Upon request, we provide component analysis and material comparison services for raw materials. In 2024, the Chemical Division carried out a total of 353 component analyses for suppliers and customers.

Online training for suppliers | To promote shared growth with suppliers, Hanwha Solutions offers an online training support program aimed at strengthening supplier engagement in sustainable practices. In 2024 two training sessions were conducted on topics such as ethical management, the Serious Accidents Punishment Act, and labor management. The program was provided to 1,050 participants from 350 suppliers, amounting to approximately KRW 11 million. In addition, ESG training was offered to suppliers seeking to strengthen their capabilities, with a focus on ESG management and strategy.

Financial Support

Operation of win-win funding I Hanwha Solutions has established a win-win funding worth KRW 44 billion in cooperation with major banks to provide loans and preferential interest rates to our suppliers. Suppliers with financing needs can access loans at interest rates 1.6 to 3.6 percentage points lower than market rates. In 2024, we supported annual loans totaling approximately KRW 23.6 billion for 32 suppliers.

Operation of the win-win payment system | To support smooth cash flow for suppliers, Hanwha Solutions operates a win-win payment system in partnership with financial institutions. By leveraging the company's high credit rating, suppliers can secure cash more quickly and at lower financing costs. In 2024, approximately KRW 398.6 billion was paid out through this system, contributing to the financial stability of suppliers.

Early payment to suppliers | To ease financial pressure on small and medium-sized suppliers, Hanwha **Solutions** provides early payments for goods delivered. This support is offered ahead of major holidays such as the Lunar New Year and Chuseok, when cash flow needs typically increase. In 2024, we provided early payments totaling KRW 19 billion to 526 key suppliers ahead of national holidays.

Enhancing the cash payment rate | The Chemical Division makes all payments to suppliers in cash to help strengthen the financial health of small and medium-sized suppliers. The Qcells Division also makes 99.9% of its payments in cash to suppliers under fair trade agreements. Additionally, the Insight Division ensures 100% cash payments to all its suppliers, helping support their financial stability and improve cash flow.

Market Access Support

Open Sourcing Program | Hanwha Solutions operates an open sourcing program that allows suppliers with proven capabilities in technology quality, and cost competitiveness to proactively propose new business opportunities. This initiative targets companies with applicable expertise in raw and subsidiary materials, packaging, and construction and equipment for the solar and chemical businesses. Upon receiving a proposal, the Open Sourcing Office conducts an internal review and provides qualified suppliers with opportunities to begin new business partnerships.

Submission email	opensourcing@hanwha.com	
	① Submission of proposal via email by the applicant	② Document review (by Open Sourcing Office)
Step	③ Registration in the temporary (potential) supplier pool	Sample testing, site inspections, and supplier capability evaluation
	⑤ Registration as an approved supplier	

Procurement consultations | Hanwha Solutions participates in procurement consultation events organized by the Agricultural and Fishery Cooperation Foundation under the Korea Commission for Corporate Partnership, helping expand collaboration opportunities with small and medium-sized enterprises (SMEs). In 2024, we took part in 10 consultation sessions, actively supporting SMEs in marketing their technologies and promoting purchasing and collaboration opportunities.

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Fostering a Culture of Fair Trade

Four Principles of Fair Trade | To promote a culture of fairness in subcontracting and build a foundation for shared growth with our suppliers, Hanwha Solutions has adopted and implemented the Four Key Fair Trade Practices based on the guidelines set forth by the Korea Fair Trade Commission. In 2024, we signed fair trade agreements with a total of 172 suppliers.

The Four Key Fair Trade Practices

- 1. Guideline for Contract Signing for Mutual Growth Cooperation between Large and SMEs
- 2. Guidelines for fair selection and registration of
- 3. Guidelines for establishing and operating Subcontracting Internal Review Committee
- 4. Guidelines for the issuance and retention of written

Strengthening Supplier Competitiveness

Joint Affiliate Event for Shared Growth | To strengthen collaboration with our suppliers, Hanwha Solutions hosted the 'Hanwha One Family Festival'. We reserved the Robot Land theme park in Masan, Gyeongsangnam-do, for the event. A total of 3,000 employees and family members from suppliers of Hanwha's affiliates were invited and provided with full-day access and complimentary food and beverages. The event helped enhance the well-being of supplier employees while also contributing to the revitalization of the local economy by increasing sales at Robot Land and nearby small businesses.

ESG consulting support for suppliers | The Qcells Division supported ESG consulting services worth KRW 9.75 million for 16 key suppliers based on ESG assessment results. The consulting focused on small and mediumsized suppliers with limited internal resources and was conducted in partnership with a credit rating agency. Support was provided through awareness training and tailored consulting to help suppliers strengthen their ESG management capabilities. In addition, the division participated in a government-led program supporting environmental information disclosure, offering separate consulting to help suppliers meet disclosure requirements.

The Chemical Division also conducted safety and health (SH) consulting for 142 suppliers based on the Serious Accidents Punishment Act. The consulting covered seven key areas, including management systems, hazardous risk factors, and safety investments. As a result, the average SH assessment grade improved from SA5 to SA4 year-over-year.

Similarly, the Qcells Division also provides SH consulting to its suppliers. Upon registration of new suppliers, safety capability assessments are conducted as part of the qualification process. When the assessment is set to expire, the division notifies suppliers to begin the renewal process.

Conducting SH assessment

Calculation of CSM (Construction Safety Management) Rating							
SA 1	SA 2	SA 3	SA 4	SA 5	SA 6	SA 7	
Top-level safety capabilities	High-level safety capabilities	Excellent safety capabilities	Good safety capabilities	Average safety capabilities	Below-average safety capabilities	Weak safety capabilities	

Participation in Large and SMEs Mutual Cooperation Program | The Chemical Division participated in a safety and health mutual corporation program for Large and SMEs. As part of this program, the division signed agreements with the Korea Occupational Safety and Health Agency (KOSHA) and external consulting firms, and identified consulting tasks for selected suppliers at each plant. Through this initiative, the division is helping suppliers establish autonomous safety management systems. It also supports them in identifying accident types and risk factors to develop improvement plans and enhance their overall safety and health level

In 2024, consulting was conducted for ten suppliers per plant in two phases—diagnosis and follow-up. Based on the findings, improvement tasks were identified, and additional consultations were held to verify their implementation.

Additionally, the **Chemical Division** plans to identify and encourage the participation of suppliers with strong commitment and favorable conditions for establishing a safety and health management system. Through this initiative, the division aims to continuously support the establishment of robust safety and health practices for suppliers and enhance their overall management levels.

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Supplier VOC

Supplier VOC | Hanwha Solutions collects supplier VOC through both online and offline channels on an ongoing basis. Most of the submissions involve requests for support programs and operational support. In addition, the Chemical and Qcells Divisions visited 23 key suppliers and conducted interviews with management and key employees, collecting a total of 19 VOCs. These were shared with relevant departments for review and improvement efforts. Of the 19 items, 12 have been resolved, and 7 are currently in progress. Hanwha Solutions plans to formalize VOC-based improvement efforts and implement them continuously.

Regular supplier meetings | The Chemical Division holds regular monthly meetings with major suppliers. These sessions are aimed at building trust and collecting on-site suggestions and feedback to develop practical improvement measures.

At meetings held at the plants in Ulsan and Yeosu, various issues were raised, including requests for facility improvements and external instructor-led training. All received suggestions were addressed and fully resolved.

VOC Handling Process



Contact: (04541) SCD Team, Hanwha Building, 86 Cheonggyecheon-ro, Jung-qu, Seoul, South Korea

Email: hw.winwin@hanwha.com

Supplier meeting summary

Frequency	Monthly	Monthly
Participants	Ulsan Plant key suppliers	Yeosu Plant key suppliers
Suggestions received	Suggestions received: 10 Suggestions resolved: 10	5 5



EHS rally at the Yeosu Plant

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Integration with Company-wide Risk Management

Hanwha Solutions integrates risks related to supply chain sustainability, including logistics and raw material sourcing, into our company-wide risk management process for systematic oversight. Each division identifies risks through its respective working-level departments and assesses their severity using a companywide risk assessment matrix. Based on the results, relevant departments conduct an initial evaluation and assign risk levels. Response measures are then developed and implemented according to the assigned grade, and their effectiveness is regularly monitored. The company-wide risk management activities and improvement plans are reported to and approved by the Board of Directors annually.

Company-wide risk management system

Supply chain ESG risk management

New supplier assessment and registration | In accordance with internal regulations such as the Supplier Selection and Management Guidelines, Hanwha Solutions conducts comprehensive assessments of new suppliers at the time of registration. These assessments include ESG criteria—such as safety environment. quality, and legal compliance—as well as financial and operational capabilities, such as financial ratios and business stability. This process helps minimize ESG-related risks and ensure financial soundness within the supply chain. Based on the assessment results, each supplier is assigned a grade. Suppliers that do not meet the minimum criteria are barred from bidding or contracting, helping to prevent potential ESG and financial risks.

Regular assessment of suppliers | To ensure supply chain sustainability. Hanwha Solutions conducts regular (post-assessment) assessments of both existing and newly registered suppliers. These assessments focus on core ESG factors, including environment, safety, on-time delivery, quality, and legal compliance and anti-corruption standards. Suppliers are assigned grades based on a weighted scoring system for each assessment item.

The Chemical Division conducts assessment upon completion of each construction project. Previously, supplier selection was based solely on price (100%), but the division revised its process to enhance fairness and sustainability by reducing the price score to 70% and incorporating the post-assessment score (30%). The postassessment is conducted in writing, based on a 30-point scale with the following weights: environment and safety (50%), maintenance (40%), and procurement (10%). As part of efforts to strengthen compliance, suppliers are also required to submit a written pledge. Suppliers with high post-assessment scores are given priority in future selection processes, which helps encourage continuous improvement.

The Ocells Division conducts annual written assessments of existing suppliers. When written assessments are insufficient for clear judgment, on-site inspections are also carried out. Based on the results, the division assesses each supplier's ESG performance and offers ESG consulting to those needing improvement, supporting the enhancement of their sustainability capabilities.

The Insight Division performs initial assessments upon supplier registration, considering the characteristics of each work type. Assessments comprehensively assess ESG factors such as safety and quality, as well as business capabilities such as credit ratings and financial stability. In addition, regular assessments are conducted annually for suppliers involved in completed projects. Grades (A-D) are assigned based on postassessment factors such as delivery performance and quality, as well as technical expertise and past performance. Suppliers rated C or below are suspended from future transactions.

Going forward, the division plans to improve its system to allow individual notifications to suppliers whose assessment scores fall below the required threshold. This will help drive their performance improvements and reinforce sustainable partnerships.

Supplier Assessment and Management Process



Monitoring on regular supplier assessments | The Qcells Division rates suppliers following regular assessments and takes appropriate measures based on the results. Incentives are planned for top-performing suppliers through the Shared Growth Mall, while those requiring improvement are subject to continuous monitoring and eligible for ESG consulting support. This consulting is conducted in partnership with a credit rating agency. It includes ESG awareness training through online orientation sessions, the distribution of self-assessment checklists, data-based diagnostics, and tailored on-site consulting. These efforts aim to systematically address ESG risks and enhance suppliers' ESG management capabilities.

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Risk Management

Conflict Minerals Management

Hanwha Solutions complies with international regulations, including the U.S. Conflict Minerals Law, and closely manage risks associated with the use of conflict minerals. We recognize that mineral mining can lead to serious social issues, such as human rights violations, environmental destruction, and the funding of armed groups. To prevent such risks, we operate a strict supply chain management policy.

The Qcells Division's module products do not contain conflict minerals, and the division will continue to conduct supplier due diligence and assessments to minimize related risks.

Metrics & Targets

Supply Chain ESG Management Goals

Hanwha Solutions establishes clear indicators and target to systematically manage and enhance the ESG capabilities of our suppliers. We plan to further expand its ESG and SH (safety and health) consulting programs initiated in 2024, aiming to mitigate supply chain risks and improve supplier ESG performance.

Supplier ESG Management Indicators and Targets

Activity	2024 Performance	2025 Target
ESG consulting for suppliers	16 companies	30 companies(Qcells)
SH (safety and health) consulting for suppliers	142 companies	143 companies(Chemical)
Regular communication channels (e.g., regional meetings)	0 session	1 session(Chemical)
On-site visits to support suppliers in ESG	16 companies	20 companies

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OUR STORY

"To foster trust and sustainability, we strive for transparent and responsible governance."

Hanwha Solutions is committed to transparent decision-making and responsible management led by a board of directors with independence and expertise. We aim for sustainable growth by establishing a sound corporate governance.

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Transparent and Ethical Governance









Board Composition

Current board composition

As of the end of March 2025, the board of directors consists of nine members: three executive directors, one non-executive director, and five outside directors. Outside directors make up 56% of the board, constituting a majority. This composition plays a key role in strengthening checks and balances on management and promoting more transparent and independent decision-making. Executive and non-executive directors are nominated by the board of directors, while outside directors are recommended by the Outside Director Nomination Committee, which is established in accordance with relevant laws, the Articles of Incorporation, and the board regulations. Final candidates are appointed through shareholder approval at the general meeting. In accordance with the Commercial Act and the Articles of Incorporation, Hanwha Solutions transparently discloses information on directors appointed at the general meeting. This process enhances the fairness, independence, and transparency of the board and plays a vital role in upholding sound governance and strengthening the trust of shareholders and other stakeholders.

(As of the March 2025 annual general meeting)

Category	Name	Position	Gender (Date of birth)	Area of expertise	Key experience	Date of appointment	Term
Inside	Dong Kwan Kim	ceo, Strategy Division	Male (1983.10)	Business management	Former CCO, Hanwha Q CELLS & Advanced Materials Current Non-executive Director, Hanwha Ocean Current CEO, Hanwha Corporation / Hanwha Aerospace / Hanwha Impact Current CEO, Hanwha Solutions Strategy Division	March 26, 2024 (Reappointed)	At the March 2026 annual general meeting
Directors	Jung Woon Nam	CEO, Chemical Division	Male (1967.01)	Business management	Former CEO, Yeochun NCC Co., Ltd Current CEO, Hanwha Solutions Chemical Division	September 12, 2024 (Newly appointed)	At the March 2026 annual general meeting
	Jung Kwon Hong	CEO, Qcells Division	Male (1974.06)	Business management	Former Head of Qcells Division Corporate Strategy Office Current CEO, Hanwha Solutions Qcells Division	September 12, 2024 (Newly appointed)	At the March 2026 annual general meeting
Non- executive Director	In-Hwan Kim	CEO, Hanwha Advanced Materials	Male (1968.04)	Business management	Former Head of Polymer department, Hanwha TotalEnergies Former CEO, Hanwha Solutions Advanced Materials Division Current CEO, Hanwha Advanced Materials	March 25, 2024 (Reappointed)	At the March 2027 annual general meeting
	Jee-Hyeong Park	Chairman of the Board	Male (1968.01)	Economics (Professor)	Former Professor, Wayne State University (USA) Former Director, Seoul National University Asia Center Current Professor of Economics, Seoul National University	March 26, 2024 (Reappointed)	At the March 2026 annual general meeting
	Jeong-Ho Seo	Outside Director	Male (1969.08)	Law (Attorney)	Former Commissioner, Korea Exchange Discipline Committee Former Examiner, National Tax Tribunal Current Lawyer, WIZ Law Group	March 26, 2024 (Reappointed)	At the March 2026 annual general meeting
Outside Directors	Satoshi Shima	Outside Director	Male (1958.04)	New business strategy	Former Management A third-term member of the House of Representatives in Aichi Prefecture Former Senior vice-president, CEO's office of the Softbank Corp.	March 26, 2024 (Reappointed)	At the March 2026 annual general meeting
	A Young Lee	Outside Director	Female (1973.05)	Accounting and finance	Former Chairman of Accounting Audit Committee of the Korean Accounting Association Current Non-standing Commissioner, Korea District Heating Corporation Current Professor of Division of Business Administration and Accounting, Kangwon National University	March 26, 2024 (Newly appointed)	At the March 2026 annual general meeting
	Jae Soo Chang	Outside Director	Male (1962.07)	New business development and technology	Former Head of Samsung Science&Technology Center Former CEO, Korea University Holdings Current Senior Advisor, Korea University Holdings	March 25, 2024 (Reappointed)	At the March 2027 annual general meeting

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Composition and roles of board committees

Hanwha Solutions operates five board committees, all composed of outside directors, to ensure professionalism and fairness in decision-making. These committees are the Audit Committee, the Outside Director Nomination Committee, the Related-party Transactions Committee, the ESG Committee, and the Compensation Committee.

Committee name	Composition	Chairman	Member	Key activities
Audit Committee	3 outside directors	A Young Lee	Jee-Hyeong Park Jae Soo Chang	 Supervising the performance of directors and management Appointing external auditors Overseeing internal risk management and controls
Outside Director Nomination Committee	4 outside directors	Jeong-Ho Seo	Jee-Hyeong Park Jae Soo Chang A Young Lee	Establishing, reviewing, and improving principles for appointing outside directors Managing the pool of outside director candidates and conducting candidate reviews
Related-party Transactions Committee	4 outside directors	Jeong-Ho Seo	Jee-Hyeong Park Jae Soo Chang A Young Lee	 Supervising internal transaction policies in accordance with the Fair Trade Act Establishing, operating, and approving internal transaction management standards (approval required for transactions over KRW 10 billion)
ESG Committee	4 outside directors	Jae Soo Chang	Jee-Hyeong Park Jeong-Ho Seo A Young Lee	 Establishing mid- to long-term ESG strategies and deliberating and resolving key ESG issues Establishing and revising ESG regulations Reviewing ESG activities and conducting regular and ad hoc assessments
Compensation Committee	4 outside directors	Jae Soo Chang	Jee-Hyeong Park Jeong-Ho Seo A Young Lee	Deliberating on the remuneration cap for registered directors Deliberating on the remuneration of directors

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Audit Committee | To enhance accounting and management transparency and to ensure sound operation of the internal control system, Hanwha Solutions operates an independent Audit Committee composed entirely of outside directors. In accordance with the Articles of Incorporation and board regulations, the committee supports the board's oversight function and is responsible for safeguarding audit independence, preventing legal and ethical violations, and evaluating and providing recommendations for improvement to the internal control over financial reporting.

Hanwha Solutions has also established a Business Audit Team to conduct independent audits. Through regular and ad hoc management audits, the team helps improve the adequacy of business processes, strengthens the risk management framework and role of internal control and promotes ethical management practices. The team also contributes to proactive compliance and ethics risk prevention by monitoring unethical conduct. In addition, to ensure the effective operation of the Audit Committee, Hanwha Solutions has designated the Corporate Planning Team as its administrative support unit. This team is responsible for operating the Audit Committee, reviewing and submitting agenda items for deliberation and reporting, and providing general support.

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6	Audit	committee	regulations

Date	Agenda item	Attendees / Total	Note
2027.02.21	Report on the 2023 Internal Control over Financial Reporting operations	3/3	Reported
2024.02.21	Adoption of the 2023 Internal Control over Financial Reporting evaluation report	3/3	Resolved
	Review of the consolidated and separate financial statements for the 50th fiscal year	3/3	Resolved
2024.02.22	Approval of the 2024 pre-approval policy for non-audit services	3/3	Resolved
	Review of agenda items and documents for the 50th Annual General Meeting	3/3	Resolved
	Report on the 2024 Internal Control over Financial Reporting operation plan	3/3	Reported
2024.04.25	Report on Q1 2024 business performance	3/3	Reported
	Report on the evaluation of the external auditor's audit plan for FY2023	3/3	Reported
2024.07.25	Report on Q2 2024 business performance	3/3	Reported
	First report on the 2024 Internal Control over Financial Reporting operations	3/3	Reported
2024.10.30	Report on Q3 2024 business performance	3/3	Reported
	Change in accounting policy for share investment accounting treatments in the separate financial statements $% \left(1\right) =\left(1\right) \left(1\right) \left$	3/3	Reported
000/44.00	Amendment to the Internal Control over Financial Reporting Regulations	3/3	Resolved
2024.11.29	Report on the 2024 Internal Control over Financial Reporting operation evaluation plan (draft)	3/3	Reported
2024.12.19	Approval of the audit engagement contract with the designated external auditor	3/3	Resolved

Outside Director Nomination Committee | To strengthen the independence and expertise of the board, Hanwha Solutions ensures a fair and transparent process for nominating outside director candidates. To this end, we operate the Outside Director Nomination Committee. The committee comprehensively reviews the qualifications, experience, and independence of candidates and deliberates on their suitability for nomination at the general meeting of shareholders.

S Outside Director Nomination Committee regulations

Date	Agenda item	Attendees / Total	Note
2024.02.22	Recommendation of outside director candidates	4/4	Resolved

ESG Committee | In response to the growing importance of ESG issues in the global business environment, Hanwha Solutions has established and operates the ESG Committee, which is primarily composed of outside directors. The committee aims to strengthen our ability to implement sustainability and ensure expertise and independence in ESG-related decision-making within the board. The committee is responsible for deliberating and making decisions on key ESG matters, including the establishment of major policies on environmental (E), social (S), and governance (G) issues, monitoring their implementation, and identifying areas for improvement.

Date	Agenda item	Attendees / Total	Note
2027 02 22	Report on the results of the ESG materiality assessment	4/4	Reported
2024.02.22	Report on 2023 Human Rights Management activities	4/4	Reported
2027 07 25	Approval of a donation to an educational foundation	4/4	Resolved
2024.04.25	Report on Net Zero implementation (Q1 2024 performance and Q2 plan)	4/4	Reported
2024.07.25	Report on Net Zero implementation (H1 2024 performance and H2 plan) and response strategy for climate risks and opportunities	4/4	Reported
	Report on ESG management (H1 performance and H2 plan)	4/4	Reported
2024.10.30	Report on Net Zero implementation (Q3 2024 performance and Q4 plan)	4/4	Reported
2024.11.29	Approval of the revision to the Human Rights Management Guidelines	4/4	Resolved
	Report on ESG management (H2 2024 performance and 2025 plan)	4/4	Reported
2024.12.31	Report on Net Zero implementation (Q4 2024 performance and 2025 plan) and outcomes of climate risk and opportunity mitigation efforts	4/4	Reported

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Compensation Committee | To enhance the transparency and fairness of management compensation, Hanuha Solutions has established and operates the Compensation Committee. The committee deliberates on the issues regarding cap on remuneration for registered directors, and the compensation for the directors, which is submitted to the general shareholders meeting, and other issues deemed necessary by the committee. The outcomes of its deliberations are reported to the board of directors.

Date	Agenda item	Attendees / Total	Note
2024.01.25	Appointment of the Chair of the Compensation Committee	4/4	Resolved
2024.02.22	Approval of the remuneration cap for directors	4/4	Resolve
ZUZ4.UZ.ZZ	Grant of RSUs for 2024 (4 items)	4/4	Resolve
2027.07.05	Amendment to the executive compensation policy	4/4	Resolve
2024.06.25	Grant of RSUs for 2024	4/4	Resolve
2024.09.12	Grant of RSUs for 2024 (2 items)	4/4	Resolve

Related-party Transactions Committee | In accordance with Article 26 of the Monopoly Regulation and Fair Trade Act and Article 33 of its Enforcement Decree, Hanuha Solutions has established the Related-party Transactions Committee within the board of directors to review major internal transactions in advance. The committee reviews appropriateness of the purpose, value, and terms of significant internal transactions, including large-scale internal transactions with related parties under fair trade regulations and transactions involving goods and services with affiliates, and reports the findings to the board. Through this process, we seek to ensure transparency in internal transaction practices and to proactively prevent any unfair support or private benefits involving controlling shareholders or affiliates.

Date	Agenda item	Attendees / Total	Note
2024.01.05	Approval of the renewal of the 2024 joint advertising agreement	4/4	Resolved
2027 02 22	Approval of participation in the paid-in capital increase of Hanwha Global Asset	4/4	Resolved
2024.02.22	Approval of Q2 2024 limits on transactions with affiliated financial companies	4/4	Resolved
	Approval of the amendment to the contract period of the Hanwha Opportunity Pursuit Fund	4/4	Resolved
2024.04.03	Approval of self-dealing transactions involving directors, others	4/4	Resolved
	Approval of the transfer of business between affiliated companies	4/4	Resolved
	Approval of self-dealing transactions involving directors, others	4/4	Resolved
	Approval of a real estate lease agreement with an affiliate	4/4	Resolved
2024.04.25	Approval of internal transactions, including goods and service transactions with an affiliate	4/4	Resolved
	Approval of Q3 2024 limits on transactions with affiliated financial companies	4/4	Resolved

Date	Agenda item	Attendees / Total	Note
	Approval of self-dealing transactions involving directors, others	4/4	Resolved
	Approval of goods and service transactions with an affiliate	4/4	Resolved
	Approval of loans and guarantees for affiliated companies	4/4	Resolved
2024.05.22	Approval of collateral provided by a related party	4/4	Resolved
	Approval of donation agreement with the Hanwha Culture Foundation	4/4	Resolved
	Report on the status of the FutureProof investment	4/4	Resolved
	Report on amendments to previously approved self-dealing transactions	4/4	Resolved
	Approval of contract modification for the Chuncheon Premium Village construction project	4/4	Resolved
	Approval of internal transactions related to the business transfer agreement involving Hanwha Corporation's Momentum SE Division	4/4	Resolved
2024.06.25	Approval of guarantee for funding solar manufacturing facilities in the U.S.	4/4	Resolved
	Approval of guarantee for the issuance of global green bonds	4/4	Resolved
	Approval of a guarantee for the securitization of IRA tax credits	4/4	Resolved
	Approval of participation in capital increase of Hanwha Global Asset	4/4	Resolved
000/05/05	Approval of self-dealing transactions involving directors, others	4/4	Resolved
2024.07.25	Approval of goods and service transactions with an affiliate	4/4	Resolved
	Approval of Q4 2024 limits on transactions with affiliated financial institutions	4/4	Resolved
2027 20 21	Approval of intercompany transactions involving directors (2 items)	4/4	Resolved
2024.08.21	Approval of real estate lease agreement	4/4	Resolved
	Approval of intercompany transactions involving directors (3 items)	4/4	Resolved
000/10 00	Approval of sale of tangible assets	4/4	Resolved
2024.10.30	Approval of extension of loan period for an affiliate	4/4	Resolved
	Approval of collateral arrangements involving an affiliate	4/4	Resolved
2024.11.29	Approval of goods and service transactions with an affiliate	4/4	Resolved
2024.11.29	Approval of U.S. Department of Energy policy funding arrangement	4/4	Resolved
	Approval of acquisition of BESS/PV development assets	4/4	Resolved
	Approval of insurance contract with a related party	4/4	Resolved
	Approval of intercompany transactions involving directors (3 items)	4/4	Resolved
2024.12.19	Approval of internal transactions including goods and service transactions with an affiliate	4/4	Resolved
	Approval of 2024 brand license agreement	4/4	Resolved
	Approval of Q1 2025 limits on transactions with affiliated financial institutions	4/4	Resolved

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Board Operations

Hanwha Solutions is committed to building sound corporate governance as a key foundation for achieving sustainable growth. To this end, we have enacted a Corporate Governance Charter that upholds the independence, diversity, and expertise of the board of directors. Based on these principles, the board operates on a system of checks and balances among its members.

To ensure transparency in corporate management and maintain agility in decision-making, **Hanwha Solutions** holds regular board meetings on a quarterly basis, and holds additional meetings as needed. In accordance with the Articles of Incorporation, board meetings are required to be called at least seven days in advance, allowing board members sufficient time to thoroughly review the agenda and proposals. In 2024, a total of 15 board meetings were held. All key matters and resolutions are disclosed on our website, ensuring transparency and easy access for shareholders and other stakeholders.

Board independence

Hanwha Solutions ensures the independence and fairness of the board by not allowing directors with conflicts of interest to vote on relevant items. This helps ensure that decisions are not swayed by any one director and that the board maintains objectivity and balance in its decision-making. Hanwha Solutions reinforces board independence by carefully reviewing the qualifications of outside director candidates through the Outside Director Nomination Committee. Information related to director appointments is disclosed transparently prior to the general meeting of shareholders so that shareholders can review and evaluate the candidates' qualifications in advance. In line with the Articles of Incorporation, Hanwha Solutions maintains a majority of outside directors on the board, ensuring that board decisions are made independently of management. Since 2024, the roles of CEO and Chairman of the Board have been separated, with an outside director appointed as chair. On March 25, 2025, outside director Jee-Hyeong Park was reappointed as Chairman of the Board. These practices help strengthen the board's oversight function and reinforce its substantive independence.

Outside Director Appointment Process



Board diversity

Hanwha Solutions appoints directors without regard to race, nationality, gender, place of origin, or religion, ensuring a diverse board composition. As of the end of March 2025, the board includes a foreign (Japanese) director and a female director, helping ensure fair and independent decision-making from a range of perspectives.



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Board Expertise

The board appoints final nominees based on their experience and expertise. Hanwha Solutions publicly discloses the key experiences and areas of expertise of directors appointed by the general meeting of shareholders. The board consists of nine experts from diverse fields including economics, management, law, development, and industry, strengthening the board's expertise and decision-making capabilities. To support outside directors to perform their duties professionally, Hanwha Solutions offers various programs, including training, and provide assistance from external experts as needed for the performance of their duties, in accordance with board regulations. Additionally, the Audit Committee is composed of outside directors with expertise in economics, auditing, and development.

Board Skill Matrix

Ca	itegory	Dong Kwan Kim	Jung Woon Nam	Jung Kwon Hong	In-Hwan Kim	Jee-Hyeong Park	Jeong-Ho Seo	Satoshi Shima	A Young Lee	Jae Soo Chang
	Leadership	•	•	•	•	•	•	•	•	•
Competency _	CEO experience	•	•	•	•					•
	Global	•		•	•	•		•		•
	Business/ Accounting	•	•	•	•	•	•	•	•	•
	Policy/ Administration						•	•	•	
	Research/ Development			•	•	•			•	•
	Legal						•			
	Year of first appointment	2020	2024	2024	2023	2020	2020	2020	2024	2023
	Independence					•	•	•	•	•
Diversity -	Age	1983.10	1967.01	1974.06	1968.04	1968.01	1969.08	1958.04	1973.05	1962.07
	Nationality	Korea	Korea	Korea	Korea	Korea	Korea	Japan	Korea	Korea
-	Gender	Male	Male	Male	Male	Male	Male	Male	Female	Male

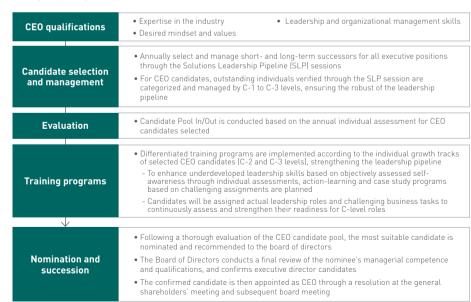
Outside Director Training Status

Date	Organizer	Attending outside directors	Main Training Topics
2024.02.21	Samil PwC	ESG Committee member	Global ESG disclosure response
2024.02.22	KPMG Samjong	Audit Committee member	Audit strategy and updates to international ethical standards
2024.04.25	KPMG Samjong	Audit Committee member	Identification of key audit matters
2024.10.31	Hanwha Solutions Insight Division	Satoshi Shima	Insight Division: Key development projects and strategies, and site development visits
2024.12.31	Korea Listed Companies Association (Online)	Audit Committee member	Internal Control over Financial Reporting and audit committee roles

CEO Candidate Pool Management

Hanwha Solutions systematically manages our CEO candidate pool to build a solid leadership succession foundation that supports sustainable management and addresses potential leadership gaps. Candidates are selected from both internal and external talent pools, with a comprehensive evaluation considering expertise, leadership and organizational management skills, strategic thinking, and the right mindset. For selected candidates, tailored development strategies are formulated and implemented taking into account individual characteristics and capabilities. In particular, job rotations provide diverse business experiences to practically assess performance capabilities. We actively support both internal and external training programs to foster self-directed skill enhancement.

Candidate training is mainly provided by Hanwha HRD Center, the Hanwha Group's dedicated training organization. The programs focus on key areas such as leadership, organizational management, and ethics. Regular 360-degree assessments are carried out to evaluate leadership competencies and provide feedback on the results. Furthermore, to enhance global management capabilities and professional expertise, Hanwha Solutions offers top-tier domestic and international MBA and Advanced Management Programs, along with global business school training, supporting the development of future CEOs' skills and their international networks.



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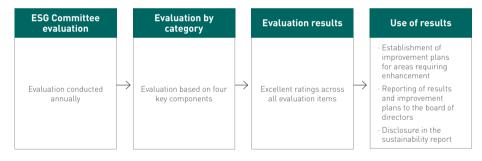




Board Evaluation

Members of the ESG Committee conduct an annual evaluation of the board's roles and operations using an objective questionnaire. The results are summarized by the Corporate Planning Team and reported to the board. The evaluation criteria include the board's performance of its roles and responsibilities (e.g., fair and diligent fulfillment of duties), its structure (composition, independence, leadership, etc.), operational approach (procedures, agenda review, the engagement of outside directors), the activities of board committees, and the board's evaluation and improvement activities (e.g., establishment of an evaluation process and development of improvement plans).

In 2024, the board received an Excellent rating, with an average score of 4.75 out of 5. Based on the findings, improvement plans were established for identified areas of weakness, and both the results and action plans were reported to the board. These evaluation and improvement activities are also disclosed in the sustainability report.



Board evaluation						
Roles and responsibilities	4.71/5					
Structure	4.86/5	Overall rating				
Operations	4.74/5	4.75/5				
Evaluation and improvement	4.50/5					

Director evaluation and compensation

To promote accountable leadership and sustainable governance, **Hanwha Solutions** operates evaluation and compensation system systematically for our board directors. Individual evaluations are conducted on a regular basis. Executive directors periodically evaluate the CEO, while outside directors comprehensively assess at the end of their term based on the appropriateness of advice on key decisions, expertise, and level of engagement. Evaluation results are reported to the board of directors and are reflected in reappointment decisions, serving as a standard to promote accountability.

The compensation limit for directors is objectively reviewed and managed by the Compensation Committee under the board and is finalized through approval at the general shareholders' meeting. The performance evaluation of each division's CEO incorporates non-financial KPIs in addition to financial performance, including progress on ESG-related strategic objectives.

Compensation for non-registered executives is also linked to non-financial KPIs, according to the nature and scope of their roles.

Through this approach, **Hanwha Solutions** strengthen fairness in our compensation system and reinforce a responsible decision-making structure to uphold sound governance.

As of 2024, the approved compensation limit for directors was KRW 9 billion, with actual payments totaling KRW 4.89 billion. In accordance with applicable regulations, individual compensation details for directors and auditors receiving more than KRW 500 million are disclosed to enhance transparency.

In addition, under a system revision in 2024, a portion of base compensation for executives may be granted in the form of RSUs (restricted stock units), which are designed to be held for up to 10 years. This structure aims to encourage long-term decision-making and responsible management among executives.

[Unit: KRW million]

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Director compensation details

Category	Total compensation amount	Average compensation per person	Number of recipients (persons)
Registered directors (excluding outside directors and Audit Committee members)	4,450	1,112	4
Outside directors (excluding Audit Committee members)	188	63	3
Audit Committee members	253	63	4
Total	4,891	445	11

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Shareholder-Friendly Management

Transparent Disclosure of Management Information

Hanwha Solutions follows a structured process for information disclosure to enhance management transparency and provide stakeholders with timely and reliable information. In line with our commitment to fair and prompt disclosure, we ensure that investors and shareholders gain a clear understanding of key corporate decisions. Relevant information is made available through our website and the electronic disclosure system of the Financial Supervisory Service (DART).

Share issuance and voting rights | Hanwha Solutions is authorized to issue up to 300 million shares. As of December 31, 2024, the total number of shares issued was 174,467,885, consisting of 171,892,536 common shares and 2,575,349 preferred shares. Hanwha Solutions ensures equal rights for all shareholders to participate in collective decision-making.

Category		Number of shares
Total number of shares issued	Common shares	171,892,536
Total number of shares issued	Preferred shares	2,575,349
	Common shares	2,804,619
Shares with no voting rights	Preferred shares	2,575,349
Character and the second	Common shares	169,087,917
Shares with voting rights	Preferred shares	-
Shares with no voting rights	Shares with voting rights	



Initiatives to Protect Shareholder Rights

Shareholder return policy | Hanwha Solutions operates a mid- to long-term shareholder return policy that allocates 20% of our free cash flow (FCF)* to shareholder returns. In terms of dividends, we have set a minimum payout of KRW 300 per common share. Dividends were limited in fiscal years 2021 and 2022 due to negative free cash flow. To address this, we have revised our policy to guarantee a minimum dividend of KRW 300 per common share for the fiscal years 2023 through 2025, even in the event of negative FCF. This revision aims to strike a balance between growth-oriented investments and shareholder returns. Accordingly, we paid dividends on April 8, 2024. At the annual general meeting on March 25, 2025, the proposed dividend under the shareholder return policy was approved, with payment following on April 9, 2025. Through these efforts, Hanwha Solutions continues to enhance shareholder value and implement a stable and consistent shareholder return policy.

* Free cash flow (FCF) = consolidated operating profit (excluding one-off gains/losses) – net interest expense – corporate tax expense + depreciation – changes in working capital – CAPEX and investment asset acquisitions

Shareholder rights protection and communication activities I Hanwha Solutions protects minority shareholders' rights during major business operation changes through the exercise of appraisal rights. We have also adopted written and electronic voting systems to facilitate more convenient participation in the exercising voting rights. In addition, the electronic proxy voting system expands shareholders' ability to exercise voting rights, while annual general meetings are scheduled to avoid peak AGM dates to encourage meaningful shareholder participation. We also operate a shareholder proposal system to promote greater shareholder engagement in business operation. Shareholders holding 0.5% or more of the total number of issued shares are granted the right to propose agenda items or resolutions for the general meeting, which helps foster a shareholder-friendly governance environment.

To strengthen ongoing communication with shareholders, **Hanwha Solutions** actively engages in various IR activities such as domestic and overseas non-deal roadshows (NDRs), corporate briefings, and one-on-one meetings. It also participates in local and international investor conferences. In 2024, we hosted four quarterly earnings calls, conducted five NDRs (domestic and overseas), participated in 10 investor conferences and corporate days, and held approximately 200 one-on-one and group meetings. **Hanwha Solutions** also regularly publishes our sustainability report and corporate governance report, ensuring transparent communication not only on business performance but also on ESG management practices and intentions. Through these disclosure efforts, **Hanwha Solutions** continues to strengthen stakeholder trust and reinforces commitment to transparency.

Major IR activities in 2024

Category	Details	Frequency 4 times	
Corporate briefings	• Quarterly earnings calls (conference calls and audio webcasts) with Korean/English materials disclosed • Briefings on key disclosures		
Non-deal roadshows (NDRs)	Domestic: Regular NDRs following corporate briefings Overseas: Regular NDRs following corporate briefings and ad-hoc overseas NDRs	5 times (4 domestic, 1 overseas)	
Conferences / Corporate Days • Participation in domestic and international investor events hosted by securities firms, and one-on-one/group investor meetings		10 times (9 domestic, 1 overseas)	
1:1 and group investor visits	Responsive investor engagement through in-person meetings and conference calls	Approx. 200 meetings	

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OUR STORY

"Integrity is our core value."

Hanwha Solutions views ethics and compliance as core pillars of sustainable management. We are committed to fulfilling our social responsibilities and embedding a culture of integrity by upholding legal compliance and ethical business practices.

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Compliance and Ethics Management

Transparent Disclosure of Management Information

Hanwha Solutions understands the importance of compliance and ethics management and have established and operated a governance system overseen by the board to ensure a structured and proactive approach

The board of directors annually reviews our overall compliance activities, including anti-corruption and risk management efforts, the identification of corruptionrelated risks and development of response plans, evaluations of the effectiveness of improvement measures, and ISO certification results related to anticorruption and compliance management. In addition, the board has approved our Code of Ethics and delegated the authority to develop its implementation quidelines to the Compliance Office, the department in charge of ethical management. Based on this authority, the Compliance Office has issued the Code of Ethics Implementation Guidelines in accordance with Article 26 of the Code

Compliance and ethics management organizations

| Hanwha Solutions has compliance officer and Compliance Organization under the Board of Directors, conducting compliance inspections twice a year, with the Compliance Officer reporting the results to the board. The Compliance Office, which is responsible for ethical management, operates Ethical Management Office within each business division.

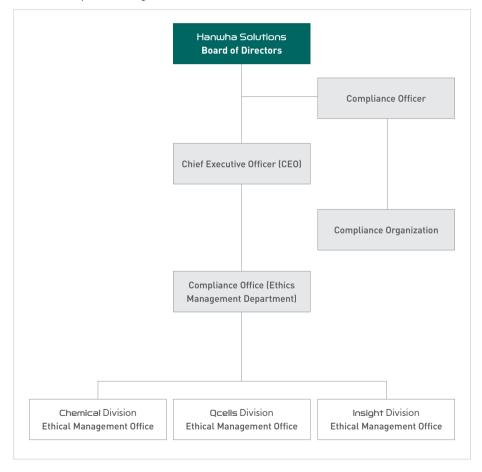
Compliance activities include quarterly compliance training and monthly distribution of compliance letters. The KPIs of compliance officers incorporate nonfinancial elements, such as compliance audits and training, aiming to strengthen compliance capabilities. It is to strengthen compliance awareness and accountable

To ensure legal and regulatory compliance in internal transactions. Hanwha Solutions has formed an Related-party Transactions Committee composed of outside directors. This board-level committee oversees matters such as large-scale internal transactions. In addition, Hanwha Solutions operates an Insider Trading Review Committee. This committee is composed of relevant executives, including those responsible for fair trade, strategic planning, and legal affairs. This committee deliberates extensively on contract legitimacy, the appropriateness of transaction terms, and the legality of other agreements.

The CEO and internal control manager conduct an annual review of the internal control over financial reporting with the results reported to the Audit Committee, the board of directors, and the general shareholders' meeting. The Audit Committee evaluates the internal control over financial reporting based on best practice guidelines and collaborates with the external auditor to validate audit plans and results.

Under this governance structure, Hanwha Solutions continues to internalize ethical management by establishing strategic ethics policies and operated a structured implementation system.

Ethics and compliance management structure



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Compliance and Ethics Management

Identification of Key Risks and Strategic Response Measures

Hanwha Solutions proactively identifies key risks related to Compliance and Ethics Management and establish strategic response measures to ensure the effective implementation of our compliance and ethics framework.

9	Company-wide	risk	management	system
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Identified risk factors Risk Level* Response strateg		ies and action taken in 2024	
Risk of workplace misconduct such as bullying and sexual harassment	L	Operation of the reporting system and embedding ethics and compliance into the corporate culture	Workplace sexual harassment prevention training Operation of grievance and remediation procedures for workplace bullying and harassment
Risk of collusion among industry peers	L	Implementation of fair trade compliance program and activities to ensure regulatory compliance	Regular compliance audits and fair trade training Blocking of information sharing with clients and market stakeholders Avoidance of contact with competitors and monitoring of competitor activities
Issues related to internal transactions and fair trade compliance	L	Strengthening the management of internal transactions	Notification and review of matters related to the Insider Trading Review Committee Pre-review of agenda items and monitoring for omissions
Management risks arising from legal violations or poor internal policy enforcement	L	Embedding ethics and compliance into the corporate culture	Establishment of internal compliance standards for employees in cooperation with the Strategy Division 's Compliance Office Company-wide compliance letters issued twice
Recruitment risks due to subjective or biased candidate assessment	III	Embedding ethics and compliance into the corporate culture	Onboarding training on compliance and anti-corruption, and collection of signed pledges

^{*} L (No level): This refers to risks that were assessed as having relatively low likelihood and impact during the company-wide risk evaluation, and were therefore not assigned a rating. These risks are managed at the team level.

Compliance and Ethics Management Policy

Hanwha Solutions has established an Ethical Management policy to address risks related to Compliance and Ethics Management. The Ethical Management policy is not merely a statement of intent. It is supported by concrete implementation strategies, as outlined in the table below, to ensure its effective implementation. Through these efforts, Hanwha Solutions aims to strengthen employees' awareness of compliance, enhances their capacity for ethical decision-making, and proactively prevents risks of corruption and legal violations.

Ethical Management policy	Core principles	Strategic initiatives
Compliance and anti-corruption policy	Compliance with laws and regulations, anti-corruption, fair trade practices	Fair trade compliance program, internal transaction management, regulatory compliance
Code of ethics	Integrity- and transparency-based management, responsible decision-making	Reporting system, management of internal transactions
H-Standard	Code of conduct for employees, prevention of conflicts of interest	Reporting system, embedding ethics and compliance

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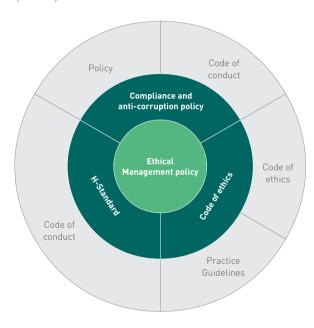
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Compliance and Ethics Management Policy

Ethical Management policy | Hanwha Solutions implements ethical management based on our compliance and anti-corruption policy, code of ethics, and H-Standard. These are Hanwha Solutions' core principles: maintaining integrity and transparency in all business activities, promoting fair business practices, and upholding social responsibility.



Compliance and anti-corruption policy | Our compliance and anti-corruption policy and code of conduct form a critical foundation for transparency, ethical business practices, and sustainable growth. These policies and code of conduct set out clear principles to foster a fair and ethical environment for all employees and stakeholders. Through this approach, Hanwha Solutions aims to fully comply with laws and internal regulations, eliminate corruptions, and uphold transparent management based on trust.

Compliance and anti-corruption policy				
Policy	Code of conduct			
Recognizing the importance of compliance and anti- corruption and ensuring trust and transparency among employees and customers	① Complying with compliance and anti-corruption laws and regulations			
Complying with relevant laws and internal regulations	② Adhering to internal policies related to compliance and anti-corruption			
③ Prohibiting bribery and other forms of corruption	③ Strictly eliminating all forms of corrupt practices			
Maintaining a clear distinction between public and private interests and ensuring fair opportunities	Providing fair opportunities to all employees Fostering a corporate culture of compliance and			
(§) Fostering a compliance and anti-corruption culture that considers conflicts of interest	anti-corruption			
 Ensuring employees can raise concerns without fear of retaliation 				
 Securing the authority and independence of the compliance officer 				

Code of ethics | The code of ethics articulates our ethical commitments to customers, suppliers, employees, and society, setting a clear direction for responsible business practices. The accompanying guidelines outline specific principles of conduct for putting these values into practice. Through this framework, Hanwha Solutions strives to foster a fair and transparent corporate culture and to fulfill our social responsibilities as a trusted company.

Code of ethics			
Code of ethics	Practice Guidelines		
Responsibility and obligations to customers Compliance with laws and respect for the principles of a free market economy Mutual growth with suppliers Core ethical principles for employees Responsibility to employees	Guidelines on the selection of suppliers and fair trade practices Guidelines on the acceptance of money, gifts, and entertainment Guidelines on the use of company assets Guidelines on document/account manipulation and false reporting Guidelines on environmental management practices Guidelines on fair trade and the prevention of unfair competition Guidelines on other basic employee ethics Compliance with and enforcement of the guidelines		

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Compliance and Ethics Management policy

H-Standard I Hanwha Solutions has established the H-Standard, a code of conduct for all employees of the organization, to foster a culture of trust through upholding ethical standards in day-to-day work. With dignity and integrity at the core of individual behavior, Hanwha Solutions seeks to build a healthy and dynamic organizational culture, pursue mutual growth with customers and suppliers, uphold social values, and align with international standards. These efforts are rooted in our core values: dedication and integrity.

Category	Ethical principles	Detailed ethical conduct guidelines
	Sincerity and dignity	Maintain dignity and integrity as a proud member of Hanwha Solutions , and fulfill one's responsibilities with honesty and sincerity.
Individual	Execution of duties in a fair and transparent manner	Perform duties fairly and transparently in accordance with laws, common sense, and principles, and refrain from giving or receiving any gifts or benefits in relation to work.
	Respect and consideration for colleagues	Respect colleagues' dignity, embrace diversity, and do not engage in verbal or physical abuse, sexual harassment, bullying, or unjust work orders.
	Safe and healthy work environment	Follow all safety and health standards to ensure a safe working environment and help foster a healthy and energetic workplace culture.
Company	Protection of company assets and information	Use the company's financial and tangible/intangible assets appropriately for business purposes, and safeguard confidential company information such as trade secrets.
	Harmony with the company	Do not pursue illegal personal gain, and in cases of conflict of interest arising from personal relationships, ensure that company interests are not compromised.
	Respect for customers	Respect the diverse opinions of customers and do one's utmost to earn their trust and satisfaction.
Society	Shared growth with business partners	Pursue mutual benefit and shared growth with business partners as trusted collaborators, and avoid any unfair practices.
	Respect for social values	Uphold universal social values and respect societal norms and commitments building trust in the company's conduct
	Adherence to global standards	Comply with global standards and respect the local cultures and values of international communities.

Compliance and Ethics Management Strategy

Reporting system | To ensure the practical implementation of ethical management, Hanwha Solutions operates a reporting channel that quarantees anonymity and independence. Reports can be submitted not only through internal systems but also by external stakeholders via the "HOT LINE" channel on our website. The Ethical Management Office promptly verifies the facts surrounding any report related to violations such as misconduct, harm to social values, and conflicts of interest, and takes appropriate action in accordance with applicable laws and internal regulations. To ensure the smooth operation of the reporting system, we safeguard anonymity through strict confidentiality and identity protection, and prevent potential disadvantages by offering leniency measures.

Workflow	Related tasks		
1. Receiving reports	Receiving reports via the Ethical Management HOT LINE or internal reporting system		
Classifying reports and requesting cooperation	Designating the investigating party (relevant division or executive management) Requesting cooperation from relevant departments within the division		
3. Conducting investigation	 Verifying the facts of the report (e.g., analyzing submitted materials, interviewing involved individuals and their teams) 		
Confirming and reporting outcomes	Preparing an investigation report Convening a Personnel Committee and finalizing disciplinary action		

Key reporting subjects	Key examples of misconduct		
Acceptance or solicitation of money, gifts, or entertainment	Accepting or borrowing money, gifts, or entertainment from clients or external stakeholders		
Leakage of internal information	Unauthorized disclosure or leakage of internal company information or trade secrets		
Theft, embezzlement, or misappropriation of company funds	Theft of office assets, use of company funds for personal purposes, or personal use of corporate credit cards		
Solicitation or improper demands	Soliciting favors or special treatment related to HR or business transactions; requesting personal convenience		
Abuse of authority (Power abuse)	Issuing inappropriate work orders, using abusive language, or exerting undue pressure		
Document forgery or false reporting	Forging performance results, expense records, or reports; submitting false reports		
Undue business favors, equity participation, or holding multiple positions	Engaging in activities related to vendors that may pose a conflict of interest		
Other violations of the code of ethics	Failing to comply with internal codes such as the code of ethics or code of conduct		

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Fair trade compliance program I Hanwha Solutions has established implementation guidelines and conducts ongoing monitoring to strengthen our fair trade compliance efforts with suppliers. We ensure equal opportunities for all suppliers and operate systems to prevent violations before they occur.

As part of our fair trade compliance program, **Hanwha Solutions** maintains an internal compliance framework to ensure adherence to fair trade regulations and enhance trust in our business practices. A Compliance Program (CP) Manager, entrusted with full authority and responsibility by the CEO, oversees the program. A dedicated department supports the Compliance Program Manager by managing day-to-day operations. The structure supports the development of a fair trade compliance culture across the organization.

Hanwha Group's 8 Core Elements of the Compliance Program (CP)

① Establishment and implementation of CP standards and procedures

- Helping employees understand and comply with fair trade regulations by establishing and implementing relevant standards and procedures
- $\ensuremath{\mathfrak{D}}$ CEO's commitment and support for compliance
 - Publicly declaring the CEO's commitment to compliance and actively supporting CP operations
- ③ Appointment of a Compliance Program Manager
 Assigning a manager under the highest deci-
 - Assigning a manager under the highest decision-making body to oversee CP operations with full authority and responsibility
- Development and use of a CP manual
- Developing manuals that incorporate fair trade laws and CP guidelines
- Ensuring easy access and use for employees

© Ongoing and systematic compliance training

- Providing regular, structured training on fair trade laws and CP requirements, especially for key departments
- (6) Establishment of an internal monitoring system
- Establishing monitoring and audit systems to prevent and detect violations early
- Providing regular reports on the findings
- Disciplinary action for violations
 - Imposing disciplinary measures in accordance with internal regulations for violations of fair trade laws
 - · Establishing measures to prevent recurrence
- ® Evaluation and improvement of effectiveness
- \cdot Conducting regular evaluations to ensure the continuous operation of the CP
- Implementing improvement measures based on evaluation results

Strengthening the management of internal transactions I As part of our ethical management practices, Hanwha Solutions rigorously manages the appropriateness and legal compliance of internal transactions. To this end, we have established an Insider Trading Review Committee within the board of directors, which reviews and approves transactions requiring board approval under applicable laws. In addition, key internal transactions are reviewed by the Insider Trading Review Committee. Through these measures, Hanwha Solutions works to prevent unfair transactions between affiliates, foster a fair and transparent business ecosystem, and protect the rights and interests of our suppliers and customers. We also prohibit collusive and unfair practices and adhere to the principles of fair trade to establish a transparent and equitable trading culture.

Embedding ethics and compliance | Hanwha Solutions provides regular ethics and compliance training for all employees to enhance their sense of ethical responsibility and legal compliance. The Compliance Office organizes and administers this training on a quarterly basis. In 2024, sessions covered a range of topics including anti-corruption, subcontracting laws, foreign exchange transactions, and trade secret protection. These efforts help employees consistently adhere to ethical standards and meet legal requirements.

In addition to regular training, Hanwha Solutions reinforces ethical awareness through various communication initiatives such as compliance letters and ethics messages. Monthly compliance letters share recent developments and best practices, while key messages from the CEO or ethics officer, typically sent during holidays, encourage legal compliance and promote a culture of integrity.

Training target	Key topics	Method
All employees	Code of ethics, Fair Trade Act, reporting system, compliance reminders for daily work, etc.	Combined online/offline training
Operational departments	Subcontracting Act, Foreign Exchange Transactions Act, trade secret protection, technology protection laws, etc.	Field-focused specialized training
Managers	Anti-corruption laws, internal control processes, and case-based practical guidelines, etc.	Case-driven intensive training



나용자로 선정되었습니다. 그러나 A 건설사 구매무서 계원들은 입장 이후 2순위 업체였도

C 회사와 공사대규요 클립 수 있는 영안에 대해 논려라면서 공사자제 중 하나인 속도를 소세용 '신제'에서 '고계'고 병질한 경우 대통을 결감한 수 있다는 것을 연시하였습니다. 어에 A 건설사 구에한시는 낙하업체에 <u>8 회사 우리 유전 안에와 함께 주세 제공을 고기도 소개 설립을 제공합보는 5 명합</u>, 설립 8 회사는 2번의 수가 전쟁을 제공하였다. <u>기본 입을</u> 맞지 세시로 고객이 1925명에 되모던 490명만 받아 낮은 19,489명만 원은 최종 선도당대원으로 항해졌습니다.

나. 확단 내용

라도라기에의 '중앙에서' 마한 '테이어' "마도(기반') 에너의 제안의 제기보시다는 "네네일라에 이러에 따르는 해가는 제안한 때 생각한 나라 없어 자기가도 입한한 근데보다 낮는 나에서도 따르게네당한 경영하는 경우 작업을 보도(대한 경영하나지고 보고 없어나. 이 이 해외가 시작되어서 () 기계에 대한 때 되고기에는 제기를 가져 () 최기가

일본만에보다 낮은 안에으로 라도갈대한 점점, (ii) 정당한 사용가 없어야 할 것입니다

이와 한편되어요 전설차 측을 통사하게 중 라타면 속으로 가게함을 표시 즉의 호설으로 생계되어 "고래"도 변경적장에 공사단점에 간략한 수업에 합설 보는 사용의 존재 현실성업사에 내가가 현재를 수행하려게 있을만 해결성 보도 주 선생이라고 된 단턴 역성성에서 내가가 현재를 수행하려게 있을만 하는 존재되었고 주 문의입습니다. 그러나 문화하게 주작에 대하여 1) & 전설사라 장상하는 당점 표시하는 가게 10나 문화하게 주작에 대하여 1) & 전설사라 장상하는 당점 표시하는 가게 #

선제에서 '고래'로 함을 요설하거나 자리 현공에 대해 자일하고로 합의한 사실이 없다고 응송한 없, 10 설계 보자 현존에 나는 두분 등의 분수 업무에 대해서면 고려도 아니는 것으로 사이는 현, 100 의료 보기에 가려면 보는 수에 사용할 과고를 전문으로 구설하고 유로를 자치에 대해 별도 '규칙을 한 경에 없는 점, 101 원생명에서 '제임을 검포되는 것이 없음한가 있는데에 '자체 전설 및 '그로 인한 대한 감에 가능성에 대한 검토까지 어려하는

대한다. 이 발생보내 되자 입병하가 되는데 중 아가 많은, 전에 조건 설립하는데 동생 사건에 고개한 당시 전체 보다는 것이 가해 내가 설립하게 되는데 함께 되는데 가장 시간에 되는 것이 되었다. 그는 이 사건에 대한 설립하다 보다는 이 사건에 되었다는 것이 되었다. 그는 이 사건에 대한 등을 만해 보았다. 사건은 소리에 되었는 것이 되었다. 그는 이 사건에 대한 등을 하게 되었다. 그는 이 사건에 대한 생각에 대한 등을 하게 되었다. 그는 이 사건에 대한 기업에 차례 표명을 받는 등 일부 이후 19년간 성실하게 근무한 점 등을 고려하면 회사하려 교육관계를 존속시킬 수 있는 정보에 사용로 볼 수 없어 부팅에고하고 환란하였습니다 (대통령 99년992) 취경).

다. 고운

대부분호, 간단하여, 대한 첫 역을 본환하여 최고하여 되어서 영향하는 그러나는 다른 가는 간단하여에 아스트웨션 이를 모르게 나는 것을 하는 것을 다른 것으로 되었는 것으로 병한 보는 것을 하는 것을 수 없다면 하는 것

에서는 일반적인 정보 전날 목계으로 제공되는 것으로서 중심하면 법적 견제나 법을 자문 하건이

(한화솔루션

Excerpt from the September 2024 compliance letter

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Activities to Ensure Regulatory Compliance

Hanwha Solutions monitors developments in domestic and international compliance-related legislation. We actively pursue responsive measures and track the outcomes of these efforts.

Applicable domestic and international laws	Response activities	
Monopoly Regulation and Fair Trade Act	Developing and distributing guidelines for reporting the inclusion or exclusion of affiliates	
Subcontracting Act	Informing relevant parties of legislative amendments and conducting legal reviews to ensure	
Act on the Promotion of Collaborative Cooperation between Large Enterprises and SMEs	 compliance with disclosure requirements, including scope, applicable entities, and effective periods, and proceeding with the required disclosures. Reviewing and issuing notifications of bid results for subcontractor selection in public tenders Distributing practical guidelines and providing standard contract templates Reviewing the overall legal compliance of processes related to the supply price indexing system 	
Unfair Competition Prevention Act	Conducting internal assessments and revising relevant internal regulations	

Ethics and compliance certifications

Hanwha Solutions has obtained certifications for ISO 37001 (Anti-bribery Management System) and ISO 37301 (Compliance Management System) to systematically address internal corruption and compliance risks and to enhance the global credibility of our management systems. Through regular audits, we continuously monitor the implementation status and identify areas for improvement.

Certifications	Key risk areas addressed	Objectives and key audit criteria Procedures in place to prevent bribery Training for employees and suppliers on anti corruption and compliance Reporting and disciplinary procedures in the event of corruption	
ISO 37001 (Anti-bribery Management System)	Bribery and corruption risks, conflicts of interest		
ISO 37301 (Compliance Management System)	Compliance risks	Maturity of the organization's compliance culture Leadership and accountability of management Evaluation of legal compliance and internal control systems	

In 2024, the ISO 37001 and 37301 audit found no non-conformities or major deficiencies. We are currently developing response plans for recommended improvements, including strengthening the competencies of bribery risk assessors. In addition to the audit results, we reported the status of our anti-bribery management system to the board of directors, including procedures for identifying bribery risks, establishing response plans, and evaluating the effectiveness of corrective measures.

Internal Control over Financial Reporting

To strengthen our company-wide risk management framework, **Hanwha Solutions** has implemented the Internal Control Assessment and Reporting Unified System (ICARUS). We have also established a dedicated internal control over financial reporting team to proactively respond to risks. We also operate a semiannual risk identification council. This council takes into account internal and external developments when identifying and managing risks that may significantly affect the internal control over financial reporting.

Hanwha Solutions systematically manages changes to our internal control over financial reporting. In consultation with external auditors, we adjusted overlapping control items and made related changes, resulting in the removal of five key controls from the evaluation scope compared to the previous year. In response to the Financial Supervisory Service's authority to establish and amend assessment and reporting guidelines, we identified control items related to fund misappropriation through external consulting and internal review. Based on this, we are working with external auditors to develop separate and consolidated disclosure frameworks. These efforts aim to strengthen fund-related risk controls and advance our internal control framework. The CEO and the internal control over financial reporting officer report the outcomes of regular reviews to the Audit Committee, the Board of Directors, and the General Shareholders' Meeting. The Audit Committee also works with external auditors to assess the adequacy of the internal control over financial reporting.

To establish a consolidated internal control over financial reporting, **Hanwha Solutions** has collaborated with external accounting experts to develop operational plans for key domestic and overseas subsidiaries. We are currently reviewing the evaluation procedures in response to the expansion of consolidated reporting standards and the roll-out of operational guidelines. We also promote accounting transparency and financial reliability through group-wide ethics codes, fraud prevention programs, and consolidated closing controls.

In addition, to enhance the effectiveness of the internal control over financial reporting, **Hanwha Solutions** incorporates relevant items into the KPIs of select executives. This approach promotes effective implementation of internal controls and strengthens the accountability of employees for risk detection and control execution. Through a performance evaluation system that reflects internal control over financial reporting outcomes, we continue to reinforce the operational effectiveness and sustainability of our internal control system.

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Compliance Reviews

To ensure effective compliance management, **Hanwha Solutions** operates a company-wide compliance inspection framework led by the Compliance Office. The office collaborates with compliance representatives across departments to carry out both regular and ad hoc inspections. It also systematically manages the entire process, from establishing corrective action plans based on inspection results to monitoring their implementation and reporting outcomes to the board of directors.

Hanwha Solutions has conducted compliance reviews for the first half of 2024 in July and for the second half in February 2025. No violations were found in the first half, while eight cases of noncompliance were identified in the second half.

In response, disciplinary measures were taken in accordance with internal regulations, and issues raised by supervisory authorities were promptly addressed. We have duly paid the administrative fines and proceeded with necessary equipment replacements and repairs to prevent recurrence. Additional corrective actions were taken for matters requiring further improvement.

Hanwha Solutions conducts an annual external review through a law firm to assess the effectiveness of our compliance system. The 2024 review confirmed that our compliance standards and inspection activities are appropriately and effectively implemented.

STEP 1. Preparation and planning STEP 4. Follow-up and reporting · Reporting to the board of directors · Led by the Compliance Office • Establishment of follow-up plans · Planning of reviews in consultation with compliance representatives STEP 3. Submission of results and STEP 2. Conducting reviews follow-up monitoring Regular and ad hoc reviews Submission of non-compliance • Department-level reviews issues and corrective action plans conducted using standardized Monitoring of implementation status checklists

Results of the Unfair Trade Risk Assessment

As part of its efforts to establish a fair and transparent business environment, **Hanwha Solutions** identifies and manage risks related to unfair trade practices by business division. We operate a tiered risk assessment framework and regularly monitor key risks such as collusion among industry peers, omission of internal transaction reviews, and improper solicitation. According to the assessed level of risk, corrective actions and follow-up monitoring are implemented.

Assessment and Response Activities for Fair Trade-related Risks by Division

Division	Identified risks	Assessment results	Follow-up actions	Planned actions	Effectiveness of actions taken
	Risk of involvement in collusion among industry peers	No significant risks identified	Conducted company-wide compliance training (once per year) Advised employees to refrain from meeting or communicating with competitors	Introduce a compliance training evaluation system to ensure the effectiveness of risk mitigation	The likelihood score was reduced from 2 to 1 through compliance training No change in the risk rating for the internalization of fair competition principles
Chemical	Risk of collusion among industry peers	No significant risks identified	Performed semiannual compliance reviews and reported the results Controlled information sharing with clients and market participants to prevent risks of collusion with industry peers Monitored competitor activities through customers and distributors	Conduct ongoing monitoring of competitor activities	The likelihood score is expected to remain at Level 1
Qcells	Omission of internal transaction reviews	No significant risks identified	Provided notice of agenda items subject to review by the Insider Trading Review Committee Performed detailed reviews of agenda items subject to internal transaction review Continued monitoring of cases omitted from internal transaction review	Develop a process to identify additional omitted cases	Ongoing monitoring of omitted internal transaction cases reduced urgency
	Risk of unfair support	No significant risks identified	Established operating regulations for the Insider Trading Review Committee and conducted internal transaction reviews to assess associated risks	Continue systematic follow-up	The measures proved effective in preventing potential violations of the Fair Trade Act and other related regulations
Insight	Lack of transparency in supplier selection, contracting, and renewal processes due to improper solicitation	No significant risks identified	Reviewed and upgraded the external procurement system (Unifier) based on identified improvements	Continue to review and upgrade the external procurement system (Unifier)	Transparent supplier selection contributed to effective risk mitigation regarding improper solicitation and related issues

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Hanwha Solutions manages quantitative indicators related to compliance and ethics management as part of our efforts to become a leading company in compliance. Through this approach, we enhance the operational effectiveness of our ethics and compliance system and ensure that our strategic goals, such as preventing corruption and establishing a fair and transparent business environment, lead to specific implementation results. By monitoring these indicators, we proactively identify risks, develop improvement plans for internal controls, and promote the internalization of ethical values across the organization.

Fair Trade and Prevention of Unfair Competition: Target and Performance

Category	2024 Target	2024 Performance
Compliance reviews*	Conduct semiannual company-wide compliance reviews led by the Compliance Office	Conducted regular company-wide compliance reviews twice in 2024
Reporting system	The Ethical Management Office investigates and takes action on any reported legal or ethical concerns	Number of reporting decreased
Internal transaction management	The Insider Trading Review Committee performs prior reviews and approvals of internal transactions in accordance with the Fair Trade Act	All 45 internal transaction proposals were approved Attendance rate of committee members was 100%
Embedding ethics and compliance	 Provide compliance training for relevant employees at least once per quarter Publish a monthly Compliance Letter Compliance Letters Conducted four quarterly training along with ad hoc training as need Published and posted a total of 12 Compliance Letters 	
Company-wide risk management	Require each department to identify risks related to unfair trade and unfair competition Quantify identified risks by assigning risk levels Establish and implement mitigation plans`	Each division identified risks and assigned risk levels; all mitigation plans were implemented Effectiveness evaluations demonstrated a reduction in risk
compliance wide risk management efforts to facilitate times in 20		Reported to the board of directors three times in 2024 (on compliance support activities, company-wide risk management, etc.)

* Results of the 2024 Compliance Reviews

Category	First half	Second half
Review period	2024.07.18 ~ 2024.08.27	2025.02.05 ~ 2025.03.05
Purpose	Verifying awareness of internal processes and confirming commitment to compliance with applicable law	
Scope	All divisions	
Review findings and follow-up actions	Each department conducted self-assessments using checklists Results were submitted to the Compliance Office Any issues identified were reviewed and addressed by the Compliance Office Results were reported to the board of directors	

In addition to internal achievements, **Hanwha Solutions** enhances the credibility of our compliance management system through third-party certification.

Overview and Results of 2024 ISO Certification Renewal (ISO 37301) and Surveillance Audit (ISO 37001)

	Category	Details
	Date / Scope	2024.11.11~13 / All divisions
Common	Purpose	Verifying compliance with all requirements of the audit standard and assessing the level of understanding, as well as the achievement of organizational policies and objectives Evaluating the management status and effectiveness of the system Confirming the effectiveness of corrective actions for any identified nonconformities Assessing whether the management system is designed to meet legal, regulatory, and customer requirements Identifying potential areas for improvement in the management system
0 110 11	Result	No nonconformities identified (six improvement recommendations)
Certification - renewal	Follow-up actions	To be added to the legal register: enforcement decrees and regulations
Surveillance _ audit	Surveillance audit result	No nonconformities identified (one improvement recommendation)
	Follow-up actions	To provide training to strengthen the competencies of bribery risk assessors in respons to audit recommendations

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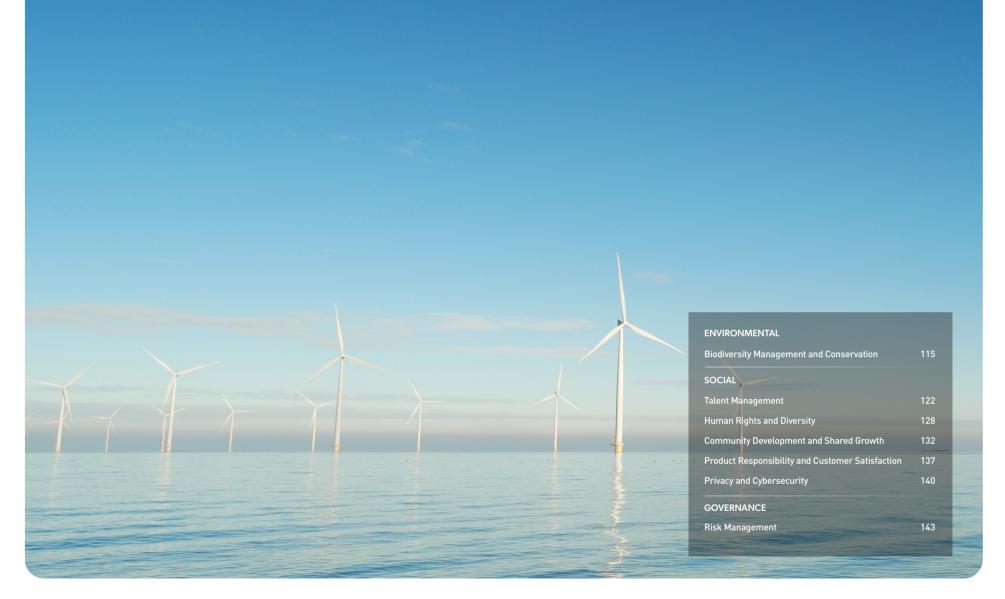
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Biodiversity Management Governance

Hanwha Solutions recognizes biodiversity management and conservation as key elements of responsible business operations. Based on this recognition, we operate a management system to minimize negative impacts on biodiversity and mitigate related risks.

Hanwha Solutions has explicitly defined the authority and responsibility by stipulating in ESG Committee regulations to review the goals and detailed action plans for biodiversity conservation, and oversee related activities and performance.

Biodiversity management system

To proactively respond to the mandatory implementation of global ESG disclosure standards and to strengthen the biodiversity management system, Hanwha Solutions has conducted site-specific natural environment analyses based on the TNFD approach and established a phased response roadmap. We also continuously monitor establishment and revisions of key disclosure standards to keep our roadmap aligned and up to date with relevant changes. Through this process, we aim to enhance its biodiversity response capabilities. We also plan to gradually expand biodiversity conservation efforts by establishing goals that support ecosystem resilience.

We also include the impact of waste and other byproducts from production processes on soil contamination as part of our environmental impact assessments and evaluate the magnitude and materiality of such impacts. Futhermore, we have established and are operating a systematic management plan to protect the ecosystem surrounding our business sites, including setting appropriate response targets based on the results. For substances subject to soil management, primary protective measures, such as installing dedicated storage facilities and containment walls, are in place. Secondary safety measures are implemented through installation and operation of pollutant detection and alarm devices.

As part of its environmental management strategy, the Chemical Division has made establishing a foundation for enhancing biodiversity as a key task and is actively managing and monitoring related efforts.

Hanwha Solutions' Roadmap for Biodiversity Management

		~2027	~2028
Establishing nature and biodiversity governance	Expanding the scope of assessment	Enhancing natural and biodiversity-related competencies	Establishing a transition plan and disclosing relevant information
Establish decision-making structures based on the ESG Committee and the Safety & Health Management Committee Establish a dedicated department of nature and biodiversity within the organization, designate responsibilities, and establish relevant roles of management Disclose the TNFD assessment process and findings for four business sites	Extend assessment to upstream and downstream beyond directly operated business sites Prioritize identified risks and opportunities Assess the financial impact of identified risks and opportunities Adopt short-, medium-, and long-term scenarios to address nature-related risks and opportunities Assess Hanwha Solutions' resilience under each scenario	Provide training to the board and members to strengthen nature and biodiversity-related competencies Support internal stakeholders in developing and embedding nature and biodiversity-related knowledge and skills Continuously monitor relevant disclosure guidelines and evaluation tools	Reflect the impact across the value chain, dependence, risk and opportunity assessment to the purchasing and production departments Establish nature-related targets and transition plans aligned with the 23 action targets of the Kunming-Montreal Global Biodiversity Framework (GBF)* Track and report on the achievement of the established goals Set SBTN(Science-based Targets for Nature) and review target validation Establish an company-wide risk management system that integrates with TCFD and TNFD risk management frameworks

^{*} GBF (Global Biodiversity Framework): A post-2020 global biodiversity framework under the UN Convention on Biological Diversity (CBD), outlining international targets and implementation plans for biodiversity conservation

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Biodiversity Management and Conservation Activities

Hanwha Solutions engages in environmental management and conservation activities to protect diverse species and minimize the risk of extinction. We also carry out initiatives aimed at raising environmental awareness.

Activities to Protect Endangered Species

Conservation of rare, endemic, and endangered plant species | The Insight Division operates Jade Garden, a botanical garden located in Chuncheon, where it conserves 38 rare plant species and 28 endemic species in accordance with the Korea Forest Service's 2025 list of rare and endemic plants. It also protects four plant species designated as Class II endangered species by the Ministry of Environment, Given that endangered species are difficult to propagate and breed and require complex individual tracking, it is challenging to quantify the population size or determine expansion rates. In response, the division plans to strengthen its management system through continuous research and monitoring.

Category	Species	
Rare plant species	Abeliophyllum distichum (white forsythia), Abies koreana (Korean fir), Allium dumebuchum, Melanchier asiatica, Anemone koraiensis and 33 other species	
Endemic plant species	Berberis koreana, Buxus koreana, Celtis choseniana, Cirsium setidens, Hosta venusta and 23 other species	
Endangered plant species	Kirengeshoma koreana, Saururus chinensis, Cotoneaster wilsonii, Thalictrum coreanum	

Conservation of endangered wildlife | The Insight

Division is engaged in the conservation of the Siberian flying squirrel (classified as Natural Monument No. 328 and a Class II endangered species in Korea). To support its protection, the division conducts quarterly population surveys by a third-party ecological research agency and prepares conservation activity reports as part of its ongoing ecosystem protection efforts. Dedicated nesting sites are maintained and managed each year. Although the population is estimated to be increasing gradually, its precise size remains difficult to quantify. In response, the division conducts continuous ecological monitoring to support the protection of the species.



Siberian flying squirrel (Source: National Institute of Biological Resources, Republic of Koreal

S National Institute of Biological Species Profile Resources (NIBR)

Initiatives to enhance environmental conservation awareness

Environmental education programs | The Insight Division operates environmental education programs at Jade Garden to promote biodiversity conservation. The division is offering two programs, titled 'Bee Explorers' and 'Squirrel Explorers'. Approximately 90 children participated in 2024, raising their awareness of the importance of environments and biodiversity. These programs will continue in 2025. Through these programs, the division provides effective education that helps future generations understand the value of biodiversity and recognize the importance of environmental protection.







Bee Explorers

Collaborative Biodiversity Activities

Creation of a collaborative garden at Choan Mountain Gardening Center | Jade Garden, operated by the Insight Division, signed an MOU with Seoul Women's University and the Dobong Office to establish an ecofriendly garden at the Choansan Gardening Center. The division is creating an eco-friendly garden within the Choansan Gardening Center that maximizes the use of rainwater. Through this activity, it is also promoting activities to raise environmental awareness among the local citizens. The project incorporates a rainwater utilization system to ensure sustainable garden management, and the design allows citizens to experience and participate in environmental conservation practices. Gardeners from Jade Garden also participate as instructors, offering environmental education as part of the program. They contribute to biodiversity conservation efforts by directly participating in the planting project, providing and planting species such as daylilies and Rhododendron brachycarpum.

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Biodiversity Management and Conservation Activities

Hanwha Solutions is contributing to local communities and environmental conservation through a partnership with national parks. Key activities include Carbon reduction through eco-friendly energy support within a national park, assisting with ecosystem monitoring of subalpine coniferous forests to preserve biodiversity, improving the welfare of national park villages and partnership programs with nearby national parks.

Ecosystem Conservation Activities in National Parks

Volunteer activities for Net Zero | In 2024, the Chemical Division carried out efforts to practice net-zero through wildlife habitat protection activities at Gyeongju National Park. Key activities included the removal of illegal traps, eradication of four invasive plant species (Ambrosia trifida, Humulus japonicus, Ambrosia artemisiifolia, and Phytolacca americana), implementation of biological control measures, conservation of native plant genetic resources, ecological restoration of relocated grave sites, and the planting of 600 native trees such as Quercus acutissima (sawtooth oak) and Rhododendron yedoense. The division supported the restoration of the Tohamsan Wetland through donations that funded tree transplantation, expert consultations, and the installation of water barriers and fencing.







Removal of invasive plant species

Biological control activities

Planting of sawtooth oak trees

Ecosystem conservation activities | At a forest restoration site within Gyeryongsan National Park, the Chemical Division conducted a range of ecosystem conservation activities. Activities included removing five invasive species (e.g., Ambrosia artemisiifolia, Humulus japonicus) and applying biological control measures. The division also planted 300 Rhododendron yedoense and 300 Spiraea prunifolia to support ecological recovery. Additionally, to prevent wild birds from colliding with glass and to ensure the safety of their habitats, bird-safe window films were installed on selected park facilities.







Tree planting activities



Installation of bird-safe window films

Climate Change Response Station Project | Hanwha Solutions signed an MOU with the Korea National Park Service in 2021 and have since engaged in various activities to reduce carbon emissions and conserve ecosystems. In particular, to address concerns about habitat degradation and biodiversity loss due to climate change, we participate in the 'Climate Change Response Station Project for Long-term Ecosystem Monitoring'. This project aims to facilitate the early detection of climate change impacts and support the development of effective response measures.

Long-term Ecosystem Monitoring Activities in Jirisan National Park

Activities	Details	2024 achievements
Phenological monitoring of indicator species	Observing changes in the flowering periods of eight plant species (e.g., azalea, royal azalea, dogtooth violet, Hemerocallis hakuunensis, Hypericum ascyron, hosta, aster, and Cirsium setidens) and one amphibian species and the breeding periods of one amphibian species within designated monitoring plots	Completed monitoring of flowering periods in 2024
Monitoring of breeding periods of tit species by elevation	Monitoring breeding periods of tit species along altitudes ranging from 700 to 1,600 meters, using artificial nest boxes and motion-sensor cameras	Completed monitoring of breeding periods in 2024
Monitoring of seasonal freezing/thawing cycles and changes in snowfall	Monitoring freezing/thawing cycles and snowfall changes using time- lapse cameras installed in Sesokgyo and Bukhaedogyo areas	Completed climate change monitoring in 2024

Research collaboration and public outreach with relevant organizations

	•	
Activities	Details	2024 achievements
Research collaboration with domestic and international institutions, and rental of station facilities and equipment	In collaboration with institutions such as the Korean Society of Plant Taxonomists, conducted field studies on climate- vulnerable species in Jirisan and identified new native habitats	Used by 115 researchers [294 cumulative users over 3 years], including from the National Institute of Biological Resources and Kyungpook National University
Collection of subalpine genetic resources and seed deposits to the seed vault	Collected genetic resources of subalpine coniferous and native species and deposited seeds in the seed vault	Secured 4.76 million seeds from 54 species, including Abies koreana and Sedum kamtschaticum
Operation of citizen science training programs for the public	Provided training on identifying seasonal indicator species and observation methods, to facilitate nationwide simultaneous monitoring of climate change impacts and fostering public awareness of the climate crisis (at least twice annually)	Trained 75 participants in phenological monitoring and species vulnerability surveys (297 cumulative participants over 3 years)
Promotion of the station via SNS and development of an illustrated ecological guidebook on subalpine plants of the Korean Peninsula	Used collected data (photos and videos) to produce climate change communication materials and to develop an ecological guidebook on alpine plants of the Korean Peninsula	Developed 8 educational resources using monitoring data (videos) Shared outcomes and exchanged knowledge with international organizations including NEON (USA) Collected data for the development of an ecological guidebook on alpine plants of the Korean Peninsula

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Biodiversity Management and Conservation Activities

The Insight Division is continuously carrying out various conservation activities to address biodiversity-related risks that may arise in the course of its business operations.

Creation of Migratory Bird Resting Sites Related to the Dangjin Haengbok Solar PV EPC Project

Overview of project

Category	Description
Project name	100MW Dangjin Haengbok Solar PV Plant EPC Project
Location	2122, Gyoro-ri, Seokmun-myeon, Dangjin-si, Chungcheongnam-do, South Korea (and 168 adjacent parcels)
Site area	1,676,156m²
Construction period	May 2024 – January 2026
Operation period	February 2026 – January 2046

On-site biodiversity conservation activities

The project site has been selected for a 'Winter bird simultaneous census survey'. To protect habitats and avoid disturbing breeding activities of birds and other wildlife, construction was suspended during major avian activity and breeding periods. To improve the surrounding environment and ensure a stable habitat for birds, the division established feeding zones, including areas where rice straw was deliberately left in place. Following the completion of construction, bird experts will be dispatched once a month for five years to monitor these feeding zones near the site and conduct bird feeding activities.



Creation of bird resting sites



Retention of rice straw within bird resting sites

Habitat Conservation Activities at the West Ochang Techno Valley Industrial Complex

Overview of activities

To mitigate potential negative impacts of industrial complex development on the local ecosystem and animals and plants, such as habitat loss and increased roadkill, the division has established a plan to install microhabitats* and improve surrounding environments. These efforts aim to support the ecological well-being and habitat conditions of various plant and animal species.

* Microhabitats: Small natural spaces such as leaf litter, moist soil, or gaps between rocks that serve as habitats for microorganisms, insects, and other small species.

Mitigation plan

1) Plan for installation of microhabitats

Log piles	Rock piles	Artificial nests
Target species: Terrestrial insects, small mammals, small birds, reptiles	Target species: Terrestrial insects, small mammals, reptiles	Target species: Birds
Expected benefits: Enhancing biodiversity for small wildlife	Expected benefits: Enhancing biodiversity for small wildlife	Expected benefits: Providing nesting and breeding sites within the project area
Quantity: 12 m ² × 7 locations	Quantity: 12 m ² × 5 locations	Quantity: 10 locations

② Establishment of safe wildlife corridors

- Installing a guiding and exclusion fence along the southern forest boundary of the site to prevent intrusion and guide wildlife movement toward adjacent forests
- Guiding animals away from the project area to minimize entry and prevent roadkill incidents



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Management of Biodiversity-related Risks (LEAP)

Biodiversity-related Risk Assessment

Hanwha Solutions assessed 29 global sites—including 16 key directly operated and upstream locations—using the LEAP approach outlined by the Taskforce on Nature-related Financial Disclosures (TNFD). Additionally, Hanwha Solutions conducted process-level analyses of nature-related impacts and dependencies at four directly operated sites, using the results to identify associated risks and opportunities.

Biodiversity-related Risk Identification Process and Results Based on the LEAP Approach

	Locate	Evaluate Assess							Prepare						
Analytical tool	· GIS (Geographic Information System) · 14 layers of nature-related data	- SBTN ¹¹ (Impact screening) - ENCORE (Identification of impacts and dependencies) - Sensitive areas and results of impact and dependency identification										Analysis results of the previous stage Internal data of Hanwha Solutions			
Process	Conducting a GIS-based assessment for 29 sites Identifying sites as sensitive areas if rated "High" or above in five or more out of the 14 data layers	- Select major domestic sites located in sensitive areas and exposed to high water-related risks, such as Yeosu, Ulsan, and Jincheon, as targets for impact and dependency assessment - Use Encore Tool to identify process-specific natural impacts and dependencies - Identify risks using the results of the analysis of nature status and process-specific impact and dependency analysis - Identify risks using the results of the analysis of nature status and process-specific impact and dependency analysis - Identify risks using the results of the analysis of nature status and process-specific impact and dependency analysis								Identifying disclosure requiremen from TNFD, SBTN, CSRD, CDP, etc., and conducting a gap analysi based on current disclosure statu Establishing response plans by reflecting ESG governance, currer activities, and future plans					
Analysis results	Importance of biodiversity Chemical Yeosu	mportance of biodiversity strong dependency on water-related ecosystem services. risks related to securing raw materials and vessel space re- Transition risks: Reputational risk res						Physical risks: Establishing response plans for water resources, greenhouse gas emissions, and pollutants							
	Hydrocarbon Resins				Impact on nature			Depender	ncy	protection, restoration, and	9		Oturities Continuis "		
		Division	Site	Very high	High	Medium	Very high High Medium ■ 4.0 and above ■ 3.0~3.				 Opportunities: Continuing effort to explore resource efficiency 				
	Ecosystem integrity Ocells Jincheon		Yeosu 1	Greenhouse gas emis- sions	Water use, air, water, and soil pollution, waste, use of terrestrial ecosystems	ND	ND	Ground- water, surface	Protection from floods and storms	Category	Yeosu 1, 2, 3, and Hydrocarbon Resins	Ulsan 1, 2, and 3	Two produ sites in K	ıction	items and ecosystem restoration projects - Enhancing the risk management system by establishing a
	QCEII3 SITICHEON							water		Tropical Cyclone					
				Greenhouse		Air, water, and			Protection	Contamination					mid- to long-term nature-
			Yeosu 2	gas emis-	Pollution	soil pollution,	ND	ND	from floods	Landslides and ground settlement					positive roadmap and linking
	Physical water risk			sions		waste			and storms	Media interest					it to company-wide business strategies
	Chemical Yeosu 1, 2, 3,		amical Vaccus 1 2 2	leosu o allu	Wateruse Air nollution ND ND	ND	Protected and conservation areas					Strategres			
	and Hydrocarbon Resins		Hydrocarbon Resins	Water abe	pollution	7 iii pottation		.,,,		Region of international interest					
	Ulsan 1, 2, and 3			Greenhouse				Ground-	Protection	Labor / Human rights					
			Ulsan 1	gas emis-	Air, water, and soil pollu-	ND	ND	water,	from floods	Water scarcity					
		sions, water tion, waste surface and st	and storms	Restriction on wildlife availability											
	Importance of ecosystem services			use	0 11 1 1 1			water		Water quality					
	•		Ulsan 2 and 3	Water use	Combined water and soil pollution	Air pollution	ND	ND	ND	Fire Hazard					
	Chemical Yeosu 1, 2, 3, and Hydrocarbon Resins		Torrestories		pottution				Construct	Heatwaves Air quality					
	Ocells Jincheon	Qcells	Two production sites in Korea	ND	Water and soil pollution	Waste, pollution	n ND	ND	Groundwater, surface water	Air quality					
	dreiiz aucusou		sites in Korea		<u> </u>		surfa		surface water	Species Crisis					

¹⁾ SBTN(Science Based Targets Network): A global non-profit organization that supports setting science-based targets for nature. It provides an impact and dependency screening tool based on the ENCORE database, as well as methodologies for setting science-based targets related to freshwater and terrestrial ecosystems.

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²⁾ WWF BRF(WWF Biodiversity Risk Filter): A biodiversity risk screening platform provided by the World Wide Fund for Nature (WWF), a global non-profit organization dedicated to nature conservation.



Identifying Biodiversity-related Risks and Opportunities

Hanwha Solutions identified key nature-related risk factors and their potential financial impacts by cross-referencing the risks identified through the LEAP approach. The identified risks and financial impacts will be reflected in our internal activities and strategic planning in the future. In addition, opportunities were identified based on the risk assessment results from our four sites and an analysis of TNFD nature-related opportunity types.

Identified Nature-related Risks and Financial Impacts

	Acute		Asset losses and restoration costs due to facility damage caused by ground subsidence and landslides
Physical	Acute	В	Asset losses and restoration costs due to facility damage caused by typhoons and floods
risks		С	Increased operating costs due to process disruptions caused by heatwaves and reduced labor productivity resulting from heat-related illnesses among employees
	Chronic		Increased water intake costs and operating costs due to water quality risks and supply interruptions (Chemical Division) In the event of operational suspension caused by water stress and shortages at the Ulsan Plant, a minimum financial loss of KRW 4.1 billion per day is expected
		Е	Legal costs related to public health and ecosystem contamination caused by hazardous substances released during manufacturing processes and contained in products, along with reputational damage leading to decreased sales
	Legal & reputation	F	Reputational damage and loss of sales due to loss of local tourism and research resources caused by habitat degradation and biodiversity loss
Transition		G	Legal costs from lawsuits due to conflict with the local community over intensified water stress, resulting in reputational damage and decrease in sales
risks	risks Policy		Increased compliance costs to meet stricter nature-related regulations (e.g., personnel expenses, operational costs, fines for non-compliance)
	Market	1	Decreased demand and sales of products with greater environmental impact due to growing market preference for low-carbon, low-impact alternatives
	Technology	J	Devaluation of existing assets due to the development of low-carbon, low-environmental-impact process technologies

	Opportunities to improve resource efficiency	01	Reduction of operating costs through improved water use intensity and water reuse (Chemical Division) Estimated KRW 1.17 billion in operating cost savings over 10 years by promoting process wastewater reuse at the Yeosu Plant
	Capital access	02	Securing access to green and nature-related funds, bonds, and loans, and raising capital to implement related projects
	Market	03	Creation of new revenue streams by entering new markets for low-carbon, low-impact products
	магке	04	Receiving government incentives for entering new markets
Opportunities	Products and services	05	Diversification of products and services and enhancement of business model resilience through the launch of low-carbon, low-impact products
	Reputation	06	Enhanced stakeholder reputation through addressing nature-related issues and contributing to ecosystem restoration
		07	Increased influence on government policy through collaborative participation in nature-related initiatives and external engagement Strengthening of corporate brand value
	Sustainable	08	Reduction of operating costs through water reuse
	use of natural resources	09	Mitigation of risks related to water supply instability
	Ecosystem protection, restoration, and regeneration	010	Deployment of nature-based flood and landslide mitigation infrastructure in alignment with the Avoid–Minimize–Restore–Offset hierarchy

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Responding to Biodiversity-Related Risks and Opportunities

Hanwha Solutions develops response strategies based on analyses of how biodiversity-related risks and opportunities affect our business. In establishing these strategies, we take into full account its ESG governance, current improvement initiatives, and future plans. Our goal is to minimize negative impacts on biodiversity while maximizing positive contributions through a balanced and integrated approach.

Response strategy

Climate change

Responding to climate change and achieving Net Zero

- Establishing a 2050 Net Zero implementation strategy for climate change
- Assessing physical and transition risks related to climate change
- Advancing R&D in low-carbon technologies such as anion exchange membrane (AEM) water electrolysis
- Scaling up the development and commercialization of eco-friendly products, including recycled polyethylene packaging and phthalate-free plasticizers (e.g., Eco-DEHCH)
- Diversifying mechanical and chemical recycling of petrochemical products
- Conducting life cycle assessments (LCA) and acquiring/renewing environmental report label for petrochemical products, implementing domestic solar module carbon foot print
- Increasing the use of renewable electricity and switching to hydrogen-based fuels
- Setting intensity targets for GHG emissions and energy consumption
- Upgrading drainage systems to prevent flood damage from heavy rainfall
- Strengthening disaster response processes and capabilities



Water resources use

- Setting intensity targets for water consumption
- Monitoring wastewater characteristics by process on a daily basis through business site water quality analysis labs at each site
- Investing in blowdown and wastewater reuse facilities in response to raw water shortages
- Expanding water reuse



S Environmental impact reduction and management

Air, soil, and water pollution

S Environmental impact reduction and management

- Establishing internal environmental impact assessment standards and conducting regular (triennial) and ad hoc evaluations based on facility changes, production increases, material revisions, or regulation updates
- Maintaining an environmental impact log and executing internal mitigation plans
- Setting intensity targets for air pollutant emissions
- · Setting intensity targets for waste disposal
- Participating in local government ecosystem restoration projects (exploring opportunities for the Chemical Division to join marine ecosystem conservation efforts)



Soil ecosystem

- Replacing and upgrading aging facilities to enhance process safety and prevent accidents
- Investing in facilities (e.g., vacuum carts) to prevent chemical leak accidents
- Redesigning dust collectors to prevent pulp and dust emissions caused by packaging machine troubles
- Establishing standards and conducting monthly inspections to prevent fire hazards at waste oil storage sites
- Performing routine internal inspections of soil contamination prevention facilities



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Talent Acquisition

Desired Talent Attributes

Hanwha Solutions has introduced a new talent model, the "Great Challenger," as part of our commitment to move beyond its role as a Local Champion to become a Global Leader. The model includes a mission, vision, and three core mindsets: ownership, bold differentiation, and openness to change. In early 2024, Hanwha Solutions provided web-based microlearning to promote understanding and adoption of the new talent model. The program also aimed to foster an organizational culture that supports sustainable growth grounded in this model. Participants completed the program by passing a post-training assessment and submitting an assignment. To help employees naturally internalize the Great Challenger mindset in their daily work, posters have been displayed throughout the workplace as part of our ongoing efforts to promote this initiative. We are also planning a variety of initiatives, including related training sessions and workshops, to further embed the talent model within the organization. Through these efforts, we aim to help employees clearly understand our strategic direction and talent values, and support the development of talent that reflects those values.

Hanwha Solutions' Talent Model

GREAT CHALLENGER

Talent who shape a better tomorrow. challenge convention with bold goals, and innovative outcomes beyond the familiar

CHALLENGER's Mission

A shared mission to shape a better future for everyone

CHALLENGER's Vision

Unwavering pursuit to become absolute No.1

CHALLENGER's Mindset

Ownership Embracing Responsibility and Engagement

We take a long-term perspective on business performance and rewards. As true owners of our work, we make decisions with accountability, act without delay, and move faster than our competitors.

Exceptional Distinction Exceeding Established Norms

We set bold goals that defy industry norms. We focus on one core priority. create distinction through attention to detail, and consistently deliver outcomes that are a step ahead.

Adaptability To Seize Future Opportunities

We neither grow complacent nor rest on past achievements in a rapidly changing market.

By facing harsh realities head-on and proactively preparing for the future, we create new opportunities ahead of others.

Talent acquisition strategy

Hanwha Solutions operates a range of programs such as internships, industry-academia partnerships, and scholarship support to attract top talent. We also use contactless methods including social media consultations (Instagram, YouTube) and online interviews. In addition, job postings for each affiliate by function are made available through the Hanwha-In portal operated by the Hanwha Group. We prioritize candidates registered in our talent database as part of a rolling recruitment system, enabling us to proactively identify qualified candidates. The Chemical Division also engages as member of the Chemical & Bio Industry Skills Council, contributing to the development of human resources



Recruitment

Recruitment of new employees: We seek high-potential candidates ready to take on new challenges and grow with Hanwha Solutions.

Recruitment of experienced professionals: To implement a competency-based recruitment strategy, relevant departments of Hanwha Solutions directly involved in the hiring process.

Internship: We offer a three-month employment-track internship program to identify candidates with

Interviewer training ensures fairness and consistency in the recruitment process.

This helps interviewers clearly understand what to avoid during interviews and how to conduct them appropriately. It also supports building a positive corporate image for candidates



New employees training and retention programs

Hanwha Solutions provides structured onboarding and training programs to support rapid adaptation and capability development of new employees. Introductory training enhances understanding of Hanwha **Solutions** and equips new hires with essential job skills. For engineers and R&D personnel who require specialized knowledge, we provide additional technical and job-specific training. Senior-junior mentoring programs enhance practical skills and foster stronger integration through close mentor relationships. In the Chemical Division, the division runs biannual programs for first-year employees to enhance their job performance. These programs focus on work reflection, communication skills, and career goals to systematically build professional capabilities. Additionally, in the Qcells and Insight Divisions, the divisions offer a variety of programs such as regular on-the-job training (OJT), special lectures, and workshops to support ongoing development of job-related expertise.

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Talent Management









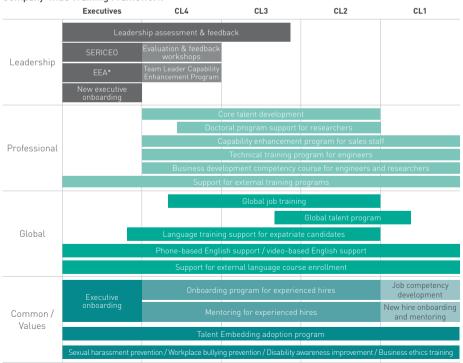
Talent Development

Talent Development Strategy

Hanwha Solutions establishes career development plans for all employees and implements a structured talent development strategy based on training programs aligned with each career level. We define key talent profiles required for each role as future-ready leaders, global experts, and functional specialists, and provide tailored education programs accordingly.

We also conduct competency assessments based on the **Hanwha** talent model to measure and manage learning outcomes before and after training. Individual assessment results are being used as future training and coaching materials.

Company-wide Training Framework



Fostering future-ready leaders

Hanwha Solutions provides leadership training to cultivate the next generation of leaders for the future and to strengthen our overall competitiveness.

The **Chemical Division** held a workshop for team leaders to enhance their evaluation and feedback competencies. Through this workshop, team leaders deepened their understanding of the division's evaluation approaches and developed skills in KPI analysis, setting evaluation criteria, and delivering effective feedback. This helped lay the foundation for establishing clear goals and operating a fair reward system as organizational leaders.

The **Qcells** Division operates a structured, tiered leadership development program designed to enhance the task execution and management capabilities of employees. The curriculum is customized by career level, including junior staff, middle managers, and team leaders. In 2024, the division conducted in-person training for newly promoted CL2-level employees, focusing on 'Effective Task Management' and 'Self-Leadership'. Advanced training sessions are also planned for middle managers and team leaders.

The **Insight** Division held a workshop and management seminar in the first half of 2025, centered on business strategy and organizational innovation. The division invited external instructors to provide leadership training for executives and team leaders, aiming to strengthen practical leadership competencies and maximize team management capabilities and organizational execution.

Fostering Global Professionals

Hanwha Solutions operates a range of programs to help employees grow into globally competent professionals, in line with the global expansion of our business. Based on our job level structure from CL1 to executives, we strengthen expertise through language training support for expatriate candidates, global job training, and global business competency programs. We also provide structured language development opportunities for employees at all levels, including one-on-one coaching, online language courses, and support for external language institutes, to enhance global competitiveness.

In addition, **Hanwha Solutions** offers employees the opportunity to work at overseas affiliates for two years through **Hanwha Group**'s Global Talent Program (GTP). By offering opportunities to work at overseas equally across all levels, including junior staff, we help our employees build global capabilities through direct collaboration with local employees.

NTRODUCTION

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Management and Conservation

Talent Management

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and Shared Growth

Product Responsibility and Customer Satisfaction

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Risk Management

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^{*} Execution Excellence Academy



Talent Development

Fostering Industry Experts

The **Qcells Division**, as part of the solar energy industry, offers specialized training programs to strengthen employee expertise and understanding. The division selects and trains internal instructors to lead courses on key topics such as the fundamentals and operating principles of solar cells, module certification, PERC and TOPCon manufacturing processes, as well as advanced technologies including perovskite and tandem solar cells. The division also provides practical training on highly applicable technical skills such as deep learning, AI-based UI development, and Python programming to strengthen on-the-job capabilities. In 2024, the division conducted a total of 15 internal instructor-led training sessions. In 2025, the division plans to introduce five new courses to further expand the program and enhance its applicability to on-site tasks.

Solar power Industry Job Training Program

Category	Details
Course	Understanding of raw and auxiliary materials used in solar modules
Participants	Completed by 52 participants
Decemination	• Understanding raw and auxiliary materials used in modules - Types and key functions of raw and auxiliary materials used in solar modules
Description	Physical properties, development procedures, and examples of materials in actual use Understanding the required properties and characteristics of each raw material type

Fostering digital talent I Hanwha Solutions established AI Academy within our proprietary generated AI platform. This learning space was created in response to the growing importance of AI literacy, defined as the ability to understand and utilize AI technologies. AI Academy provides a structured and efficient learning environment where employees can proactively build AI capabilities. It offers a comprehensive curriculum that covers AI fundamentals, core technologies, current trends, application cases, and practical use scenarios. We also conducted in-person training sessions for executives using both AI Academy content and our internally generated AI tools. These efforts have accelerated the company-wide adoption of AI literacy.

We plan to establish a sustainable AI utilized ecosystem and a culture of self-directed learning and innovation by continuing structured change management efforts to promote AI literacy; developing job-specific generative AI templates and a case library; offering customized training programs tailored to individual proficiency levels; activating mini projects through the AI Builder platform; and cultivating AI translators who possess both business and AI expertise.

In addition, **Hanwha Solutions** is planning to offer DT Insight training for executives in the **Chemical Division** to promote a culture of sustainable digital innovation. For all employees, we will continue to provide practical and task-oriented AI training programs using Agent H, our internally generated AI platform.

Evaluation of Effectiveness of the Digital Talent Development Training Program



Career management programs | Hanwha Solutions operates a career management support system called Job Market, which supports internal recruitment when additional personnel are required. After the completion of business planning we announce recruitment plans for additional roles when needed. This allows employees to apply for positions that align with their skills and interests, offering opportunities to manage their careers in a planned and proactive way.

The Job Market program is available not only in Korea but also in our overseas affiliates, where employees can apply for internal openings. Our HR department conducts annual surveys and ongoing one-on-one interviews to understand employees' concerns and career development needs. We also provide feedback on job performance and reputation for individual, helping each employee design a career path aligned with their strengths and aspirations. This supports greater job engagement and satisfaction. For executive-level, **Hanwha Solutions** offers training opportunities through leading domestic and international Advanced Management Programs (AMPs), which deliver practical executive knowledge. We also offer Global Management Programs (GMPs) to identify and develop next-generation leaders while strengthening global competitiveness.

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Talent Development

Engineering job training | Hanwha Solutions develops and operates division-specific training roadmaps through our Technology Training Center to cultivate outstanding engineering talent. We provide level-specific training across production, quality, maintenance, and other core operational areas.

In addition to engineers in the **Qcells Division**, the division make these training programs available to non-engineering staff, including office employees. In the **Insight Division**, the division supports employees by offering opportunities for voluntary participation in external training programs designed to enhance their job-specific competencies. In 2025, **Hanwha Solutions** plans to introduce a 'Hybrid Learning Model' that combines online and offline education. While the pandemic, the online learnings have expanded, it also revealed limitations such as a lack of hands-on experience and a decline in problem-solving capabilities. The hybrid model integrates hands-on and digital methods to overcome online learning limitations.

Support program for certification acquisition I Hanwha Solutions' Technology Training Center actively encourages employees to obtain job-related qualifications and licenses to strengthen their professional expertise. To support this, we provide financial assistance for related expenses such as textbook fees, course tuition, and exam fees. We also maintain a structured system to track certification achievements and promote ongoing self-development. In addition to professional roles, Hanwha Solutions offers a variety of job-relevant training programs to general administrative employees. As a result, 21 general administrative employees obtained job-related certifications in 2024, an increase of four certifications from the previous year.

General Administrative Employees with Job-related Certifications



Retirement Training I Hanwha Solutions supports employees in preparing for a stable and fulfilling life after retirement. For those aged 50 and above who are approaching retirement, we offer training programs and counseling sessions focused on second career planning. Topics include retirement planning, personal finance, social engagement, and leveraging public support. We also provide tailored guidance for reemployment and entrepreneurship. Through these programs, retiring employees are given the opportunity to explore new career paths and pursue personal fulfillment in their next chapter.

Evaluation and Compensation

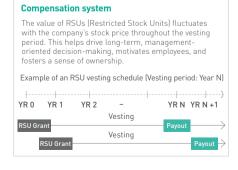
Performance evaluation system I Hanwha Solutions implements a performance evaluation system based on Management by Objectives (MBO). At the beginning of the year, employees set individual goals, conduct mid-year check-ins through ongoing feedback from managers and peers, and receive final performance ratings through a comprehensive year-end evaluation. To ensure fairness and credibility, we apply an absolute evaluation approach. The Super H system enables two-way feedback between employees and colleagues. By aligning individual goals with the organization's overall objectives, we help employees understand Hanwha Solutions' direction and achieve their goals more effectively.

Promotion and compensation system | Hanwha Solutions has reduced tenure requirements for each career level and introduced a Fast Track system to ensure that all employees can grow based on their capabilities, regardless of job level, age, or gender. In addition, we have enhanced fairness in evaluations through an absolute evaluation method and established a fair HR system by implementing a promotion sessions based on roles and competencies.

From 2025, 360-degree assessments will be extended to CL3 and CL4 employees, who are candidates for team leader roles. The evaluation examines alignment with our talent model and assesses key leadership competencies through 360-degree assessments, and the feedback helps identify areas for improvement and supports individual development. To avoid short-term decision-making and to realize responsible management from a long-term perspective, **Hanwha Solutions** abolished the short-term incentive system for executives since 2020 and adopted a Restricted Stock Unit (RSU) program. Designed with a vesting period of up to ten years, this RSU system fosters a sense of ownership among employees and encourages a focus on **Hanwha Solutions**' sustainable growth.

Promotion and Compensation System





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Employee Benefits

To go beyond basic welfare programs, **Hanwha Solutions** offers various employee benefits that promote job satisfaction, foster engagement, and attract and retain top talent. We also actively support improved quality of life for our employees and their families by fostering a family-friendly work environment. To this end, **Hanwha Solutions** revised our existing "Dad Leave" program to provide up to 30 days of leave. This update reflects recent changes in labor regulations and underscores our ongoing efforts to promote shared parenting responsibilities and promote a family-friendly workplace culture.

Hanwha Solutions will continue striving to create a workplace where every employee enjoys meaningful benefits and a supportive environment.

Employee Benefits Program

Category	Employee benefits
Health	Medical expenses, health check-ups, and in-house fitness facilities
Living support	Commuter bus service, employee cafeteria and housing, housing loan support
Life events	Special leave and financial assistance for life events
Refresh and leisure	Refresh leave, sabbatical program, and in-house club activity support
	Mom's Package, reduced working hours during pregnancy, support for pregnancy and prenatal exams
Maternity and	Leave for miscarriage or stillbirth, childbirth allowance, pre- and postnatal leave, paid nursing hours, and maternity protection leave
Parenting	Congratulatory bonus for children's enrollment and tuition support for children
	"Dad Leave" program (up to 30 days)
Work-life balance	Flexible work arrangements (e.g., staggered hours, flexible schedules) and PC-0FF system

Employee Communication

Promoting internal communication

Communication with executives | Hanwha

Solutions actively promotes communication with our executives to build trust within the organization and enhance employee motivation. The Chemical Division holds CEO briefings on business operations and Hi CEO sessions to provide direct insights into the CEO's management philosophy and business strategy. The division also operates communication channels to promote open communication and clearly communicates strategic direction through group meetings with the Head of Management Support Office and roundtable discussions with senior executives.

The Qcells Division regularly holds informal teatime sessions between the CEO and team members. These sessions serve as a platform to listen to employee concerns and opinions and to look for potential solutions, which in turn helps improve the organizational culture and employee satisfaction.

The Insight Division organizes quarterly or semiannual meetings between business unit executives and team members. Since 2024, the division has expanded these efforts to include team-level sessions with the Head of the Division. Starting in the first half of 2025, the division introduced age group-based tea-time sessions for working-level employees, providing an opportunity to discuss the division's future direction openly. Suggestions and questions raised during these sessions are carefully reviewed and addressed by senior management. Feedback is also given on whether the ideas can be implemented, especially when they are deemed to contribute to the company's growth. Promoting internal communication and mutual understanding I The Chemical Division promotes interdepartmental communication by operating team exchange programs within the organization. At the Research & Development Institute, small-group tea-time sessions led by the CTO are held weekly, providing a time for sharing concerns and issues while fostering mutual understanding among team members.

The Qcells Division held a management briefing session where CEO and employees shared its performance and mid-to-long-term goals. During the session, the division presented business performance updates and plans for new business expansion. These efforts offered employees an opportunity to align their personal goals and growth with the company, thereby boosting motivation and enhancing engagement.

The **Insight** Division is implementing various activities to encourage communication and engagement among employees and across teams. These include posting team news on internal boards and running programs designed to promote mutual understanding within the division.

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Employee Communication

Labor-management relations based on trust

Hanwha Solutions quarantees employees' fundamental rights, including the freedom of association, the right to collective bargaining, and the right to collective action, in accordance with the Constitution and relevant labor laws. To promote smooth communication and mutual growth between labor and management, we hold quarterly Labor-Management Council meetings at headquarters and each business site to listen to employee grievances and opinions, in addition to wage and collective bargaining. These efforts support active communication and help foster a sound labor-management relationship based on mutual trust.

The Chemical Division conducts Labor-Management Council meetings to enhance communication and cooperation with employees.

The Qcells Division operates multiple communication channels to promote employee rights, such as Q-Board for general employees and the "Hanmaeum Council" for professional employees. These platforms help the division continuously collect employee feedback and engage in ongoing discussion to address their needs and concerns

The Insight Division shares the outcomes of Labor-Management Council meetings with participating Labormanagement committee members and communicates key discussion points through them. Complaints raised during the meetings are referred to relevant departments for review. For matters that can be addressed, appropriate measures are taken and the outcomes are subsequently shared.

Innovating organizational culture | The Insight Division has introduced the 'Creative Group' initiative to promote an innovative organizational culture. This initiative encourages employees to propose ideas from the perspectives of advancement, diversification, and differentiation, with selected proposals receiving companylevel support for further development. Employees form groups of two to three members and submit a proposal outlining their ideas. These proposals are then evaluated based on internal review criteria. If selected, the group is launched as a Task-Force (TF) to pursue the project, entering the implementation phase, which includes developing the idea in detail and identifying potential collaboration partners. Upon completion of the activities, the team presents its outcomes. The results are then reviewed to determine whether the project should proceed further and rewards should be granted based on performance.

Organizational Culture

Assessing organizational culture | Hanwha Solutions conducts an annual organizational culture survey for all employees to assess 'Ways of Working' and collective 'Mindset'. The survey is accessible via mobile and web platforms and uses a five-point scale to evaluate seven key areas, including vision, strategy, leadership, and purpose of work, etc. Employees are also encouraged to provide feedbacks freely. The results help identify employee perceptions, level and weaknesses of the current culture, and areas for improvement. Based on the findings, we continuously pursue initiatives to strengthen our organizational culture.

Fostering a culture of integrity | The Qcells Division provided 'Integrity and Ethics Training' for executives and team leaders. The training covered topics such as 'Understanding Corporate Integrity and Ethics and Internal Rules' and 'Misconduct Cases and the Role of Leadership'. The training aimed to strengthen ethical thinking and behavior while raising awareness of misconduct, thereby supporting the development of a culture rooted in integrity.

Horizontal Organizational Culture

Hanwha Solutions has restructured our company-wide job levels and titles to promote a more horizontal organizational culture. Job levels have been simplified into four stages (CL1 to CL4, where CL stands for Career Level), and all employees are now addressed using the unified title "Pro."

Organizational culture improvement initiatives | The Chemical Division launched a program in 2025 that allows iunior-level employees to attend executive meetings. This initiative helps participants gain a deeper understanding of the division's operations and decision-making processes, while providing opportunities for mutual communication between executives and employees.

The **Insight Division** is pursuing growth as a sustainable real estate developer. To support this effort, the division operates a dedicated team focused on improving organizational culture, called Reno TFT. Centered on the themes of growth, communication, and innovation, Reno TFT carries out a range of initiatives and has also established a Code of Conduct as a practical guide to support the implementation of these initiatives. The division held briefing sessions about Reno TFT to encourage all employees to participate. Currently, team members selected from each business unit are actively collecting ideas and feedback from employees and implementing them. The division continues to pursue these small but meaningful changes with the aim of contributing to the overall improvement of its organizational culture.



Insight embraces change

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Human Rights Management Governance

Hanwha Solutions has established a human rights management governance system to respect and protect the rights of all stakeholders who may be directly or indirectly affected by our business activities. The ESG Committee receives annual reports on findings from human rights due diligence, grievance handling performance, and human rights risk assessments and response strategies, and manages and oversees our overall human rights management. In addition, by reviewing and approving revisions to related policies such as the Human Rights Management Charter and Guidelines, the committee ensures that our human rights commitments are put into action, embedding human rights values across our business operations.

Human Rights Management Governance Structure and Roles

Board of Directors (ESG Committee)

Human Rights Management Council (Secretary: ESG Secretariat)

Human rights-related departments

ESG Secretariat, Legal Department of Strategy Division, and relevant departments in each division including HR, Procurement, and EHS (Environment, Health & Safety).

Organization	Role
Human rights-related departments	 Identifying and assessing human rights risks Planning and implementing mitigation measures Evaluating the effectiveness of mitigation outcomes
Human Rights Management Council	Conducting overall evaluation of human rights due diligence and discussing areas for improvement
ESG Secretariat	Carrying out the human rights due diligence process Operating the Human Rights Management Council Reporting to the ESG Committee

Human Rights Management System

Human Rights Management Policy

Human Rights Management Charter

Human Rights Management Guidelines

- · Human Rights Management Roadmap
- Detailed Principles of Human Rights Management

Detailed Standards for Human Rights Due Diligence Procedures

- A Human Rights Management Charter Human Rights Management Guidelines
- S Detailed Standards for Human Rights Due Diligence Procedures

Human Rights Management Charter | At Hanwha Solutions, we are committed to respecting and protecting the human rights of all stakeholders affected by our business activities, including employees, suppliers, local communities, and customers. Hanwha Solutions endorses international standards such as the Ten principles of the UN Global Compact (UNGC) covering human rights, labor, environment, and anti-corruption, the Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, and the International Labour Organization (ILO) Conventions, Based on these principles, we have established our Human Rights Management Charter and disclosed it publicly through our official website.

Human Rights Management Charter

- First, Hanwha Solutions respects the inherent dignity and value of all our employees and is committed to protecting their human rights.
- First, Hanwha Solutions makes every effort to prevent and addresses human rights violations across the entire value chain, including our subsidiaries and suppliers.
- First, Hanwha Solutions manages our business operations to ensure that our operations do not negatively impact the rights of local communities.
- First, Hanwha Solutions exercises due care in accordance with applicable laws and regulations to ensure the life, health and safety of our customers through our products and service.
- First, Hanwha Solutions establishes and implements a management system necessary for human rights management, which includes ethical management, safety, health and environmental protection, compliance. and personal data protection.

Human Rights Management Guidelines | In line with the commitments outlined in our Human Rights Management Charter, Hanwha Solutions establishes and revises the Human Rights Management Guidelines with the approval of the Board of Directors or the ESG Committee. These guidelines are designed to ensure the effective protection and respect of stakeholder human rights and include a midto long-term human rights management roadmap as well as a set of detailed principles necessary for managing human rights issues.

Detailed Principles of Human Rights Management

Respect for human rights Non-discrimination in working	· Prevention of sexual harassment and workplace bullying
conditions	· Responsible supply chain managemen
· Guarantee of the right to fair and	· Guarantee of the human and
desirable working conditions	environmental rights of local
· Freedom of association and the right to	communities
collective bargaining	· Protection of customer human rights
· Prohibition of child and youth labor	· Human rights due diligence procedure
· Prohibition of forced labor	· Human rights grievance channels and
· Ensuring occupational health and safety	procedures

In 2024, we developed the Detailed Standards for Human Rights Due Diligence Procedures to systematically manage human rights risks. These standards outline the full process, from the designation of organization carrying out human rights due diligence and risk identification to monitoring. The ESG Secretariat is responsible for establishing and revising these standards under delegated authority in accordance with the Human Rights Management Guidelines.

Human Rights Due Diligence Procedures

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ldentifying human rights risks					
Assessing human rights risks					
Planning and implementing mitigation measures					
Monitoring (including evaluating effectiveness)					
<u> </u>					
Reporting and disclosing results					

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Human Rights Management System

Human Rights Management Strategy

Human Rights Management Roadmap | To ensure a structured implementation of human rights management, Hanwha Solutions has established and implementing a mid- to long-term roadmap. In 2024, we conducted a human rights impact assessment to further embed human rights management practices across our operations. Based on the results, we identified key human rights risks and developed and implemented corresponding improvement measures.

We also expanded ESG-related training, including for employees, to raise awareness of human rights across the organization. To advance human rights management efforts, Hanwha Solutions has developed a phased roadmap with detailed annual implementation plans, structured into a preparation phase and an implementation phase. Based on this framework, we will pursue the step-by-step advancement of our human rights management system.

Mid- to Long-term Human Rights Management Roadmap

2023 - 2024 2024 - 2025 2026 - 2027 Step 3: Implementation for advancing Step 2: Preparation for advancing human rights management Step 1: Regularization of human rights management human rights management 2026 detailed implementation plan 2024 detailed implementation plan • Conducting human rights impact assessments • Revising human rights policies, including due diligence and remedy Assessing human rights risks and developing and implementing • Implementing advancements of the human rights due diligence improvement measures procedures (Completed) • Expanding ESG training and awareness - Implementing short-term improvement actions previously • Establishing a plan to advance human rights risk management 2025 detailed implementation plan • Expanding the scope of supplier human rights due diligence [domestic] • Establishing the Human Rights Management Council (Completed) • Identifying needs for advancing the human rights due diligence process 2027 detailed implementation plan - Conducting overall evaluation and discussing areas to be improved • Implementing advancements of the human rights due diligence within the council • Aligning with the Supply Chain Management Policy (Completed) - Reviewing and supplementing short-term improvement actions - Conducting ESG due diligence for key suppliers and requiring them • Expanding the scope of supplier human rights due diligence to sign the Supplier Code of Conduct (overseas)

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Human Rights Risk Management

Hanwha Solutions conducts human rights surveys and impact assessments targeting internal stakeholders, including vulnerable groups such as pregnant workers and older employees at our headquarters and business sites, as well as external stakeholders, such as key suppliers. Potential human rights risks are identified through regular assessments conducted once a year. Each identified risk is rated based on the likelihood of occurrence and potential impact. For risks identified, we develop and implement mitigation measures, and the effectiveness of these measures is evaluated and monitored using a rating scale of High, Medium, or Low. The results of our human rights impact assessments, along with mitigation actions and evaluations of effectiveness, are reported annually to the ESG Committee. Going forward, Hanwha Solutions plans to expand the scope of our human rights due diligence and advance related procedures to minimize human rights risks across both internal and external stakeholders.

Human Rights Risk Management Process

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Sites covered by the human rights survey

 Chemical Division: Headquarters, R&D Institute, Ulsan Plant, Yeosu Plant Qcells Division: Headquarters, Jincheon Plant

Insight Division: Headquarters, Jade site, MUWA LAB site

2024 human rights management checklist assessment results:

- All assessment items in the checklist below were assessed as

Human rights management checklist

A checklist was formed to cover the following areas, referencing Human Rights Management Guidelines:

- Non-discrimination in working conditions
- Guarantee of the right to fair and desirable working conditions
- Freedom of association and the right to collective bargaining
- · Prohibition of forced labor
- · Prohibition of child labor
- . Ensuring of occupational health and safety
- Guarantee of environmental rights

Suppliers

- · Including human rights-related items concerning supplier employees in the ESG assessment checklist and conducting selfassessments and due diligence for 15 key suppliers
- Assessing safety and health management systems for 117 key
- → Based on the 2024 assessment results for a 7 representative suppliers among key suppliers: Identifying areas for improvement in certain suppliers, including non-discrimination in working conditions. Guarantee of the right to fair and desirable working conditions, freedom of association and collective bargaining, and occupational health and safety
- · Providing consulting to suppliers to address the identified areas for improvement

Area	Key human rights risks	Vulnerable groups	Risk mitigation measures by division	Effectiveness measures (H, M, L)	
Employee	Potential for workplace bullying and sexual - harassment -	Employees (Chemical Division)	Conducting regular training to prevent workplace bullying and sexual harassment Enabling prompt reporting through anonymous reporting channels Providing victim protection and support through external experts, including counseling services	Preventing the possibility of workplace bullying and sexual harassment through regular preventive such as training Increasing employees' willingness to report and trust in the division's response by establishing a prompt	Medium
human rights		Employees (Qcells Division)	Appointing and operating designated personnel in charge of responding to workplace bullying and sexual harassment	Significantly reducing the number of grievance reports and cases received in 2024	Medium
		Employees (Insight Division)	Conducting regular training to prevent workplace bullying and sexual harassment Operating internal reporting channels	Preventing the possibility of workplace bullying and sexual harassment through regular preventive activities (0 case reported)	Medium
Occupational safety and health	Health risks to vulnerable workers (Pregnant employees: risk of health complications / Older employees: risk of heat-related illness during extreme heat)	Pregnant and older employees (business sites)	Providing essential prenatal supplements to pregnant employees and their spouses Adjusting working hours and providing rest areas for employees	Reducing the risk of health issues for vulnerable groups such as pregnant employees Reducing the risk of heat-related illness among older employees by installing additional air conditioners in rest areas	Effectiveness of mitigation measures for risks related to pregnant employees: Medium Effectiveness of mitigation measures for risks related to older employees: High
	Health risks to employees due to exposure to pollutants generated in manufacturing processes	Employees (business sites)	Installing prevention facilities to reduce pollutants and regularly measure emission concentrations to confirm adequacy	Achieving a 15.3% reduction in discharged wastewater concentration per unit compared to the 2024 target	Medium
	Safety risks associated with on-site operations	Employees (business sites)	Conducting safety inspections Conducting activities such as employees identifying and eliminating potential hazards (e.g., CTO, near misses, safety suggestions)	Achieving a 38% reduction in identified high- and medium-risk cases based on safety inspection results Achieving 99.2% of safety culture improvement indicators, achieving 285 CTO cases and 399 participants in Near Miss activities	Medium
Serious Accidents Punishment Act	Risk of non-compliance with the Serious Accidents Punishment Act	Employees from suppliers	Setting occupational health and safety goals/plans and conducting performance evaluations based on implementation rate, achievement rate, and identified improvement areas	Improving rating in SH [Safety & Health] assessments of suppliers	Medium

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[&]quot;No issues identified"



Human Rights Risk Management

Human Rights Grievance Counseling and Reporting System

Hanwha Solutions operates human rights grievance and reporting channels to prevent and respond promptly to human rights violations such as sexual harassment, physical or verbal abuse, and workplace bullying that employees may encounter during the course of their work, and to promote sound organizational culture. These channels are managed at the division level, and grievances submitted through various reporting channels are addressed promptly and fairly.

All reported cases undergo an investigation process to verify the facts, and appropriate actions are determined through the HR committee. We strictly ensure anonymity to protect reporters and victims from any form of discrimination, disadvantage, or retaliation. In 2024, a total of six human rights grievances were received, and protective measures were completed for 100% of the cases.

Hanwha Solutions also operates separate channels to address human rights grievances from our suppliers. These grievances can be submitted either online or in person through channels of each division. In 2024, we received 27 cases, all of which were successfully resolved.

Grievance Counseling and Reporting Channels of each Division



Grievance Handling Process of each Division



Human Rights Management Activities

Promoting Employee Diversity

Non-discrimination principle | Hanwha Solutions prohibits discrimination in recruitment, job placement, promotion, compensation, training, and benefits on the basis of gender, religion, disability, political opinion, social status, nationality, or race. Our diversity practices are continuously monitored in accordance with domestic labor laws and International Labour Organization (ILO) conventions.

Enhancing Diversity

To eliminate structural discrimination which female employees may face and to foster a family-friendly organizational culture that supports childbirth and parenting, Hanwha Solutions has developed division-specific improvement plans and operate a range of supportive systems. As a result, the Chemical Division has continuously maintained its family-friendly certification. The division provides equal opportunities to all applicants through a fair and transparent recruitment system. This includes implementing a certified interviewer program and training to ensure consistent evaluation criteria and hiring practices. The division also works to expand workplace diversity by giving preference points to individuals with registered disabilities and eligible veterans and their families.

In addition, the **Qcells Division** operates a sports team for persons with disabilities to promote an inclusive social culture and generate social value. The team currently consists of 40 athletes, and the division provides support such as uniforms, training equipment, and training facility rentals. The division also provides monthly salaries to the athletes to help improve their performance.

Human Rights and Diversity Training

Human rights and diversity training | Hanwha

Solutions regularly conducts both mandatory and non-mandatory training programs to raise human rights awareness and foster a sound organizational culture among all employees, including contract and temporary employees. Mandatory courses include workplace harassment prevention, sexual harassment prevention, personal data protection, and disability awareness. In addition, we offer nonmandatory training such as child abuse prevention and reporter protection training. For business sites in the service sector, we also provide training for mandatory reporters of abuse against persons with disabilities. This aims to improve awareness of vulnerable groups and strengthen protective systems against potential human rights violations.

Status of Human Rights Training in 2024

Training topics: workplace harassment prevention; sexual harassment prevention; disability awareness training; mandatory reporting training on child abuse; and mandatory reporting training on abuse against persons with disabilities

Division	Total training hours	Number of participants	Average training hours per person
Chemical	3,909	1,303	3.0
Qcells	8,109	2,703	3.0
Insight	1,335	299	4.5
Total	13,353	4,305	3.1

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Social Responsibility Governance

To effectively establish and implement our social contribution vision and strategy, **Hanwha Solutions** has formed and operate a Social Contribution Operation Committee under the ESG Committee.

Social contribution governance framework



Organizational structure and roles of the Social Contribution Operation Committee

- Reviewing annual performance and approving activity plans
- Auditing and reviewing the appropriate use of donations
- ③ Verifying compliance with legal regulations and internal guidelines
- Promoting employee awareness and encouraging voluntary participation in social contribution

 Incorporating feedback and developing improvement measures for more effective operations of social

Convening the committee and making decisions on

urgent matters as needed

contribution

Hanwha Solutions actively engages in addressing local issues and fostering shared growth by working closely with a diverse range of stakeholders. To this end, we collaborate with local councils such as the Community Security Council, Social Welfare Council, Yeosu Industrial Complex Joint Development Council, and the Business Support Committee of the Korea Chamber of Commerce and Industry. Through these partnerships, we gather input, and collaboratively plan and carry out community initiatives. In particular, the Chemical Division continuously engages with a community advisory group to collect a wide range of perspectives and contribute to solving environmental and social issues while supporting local development.

The Qcells Division also maintains ongoing communication with local stakeholders through dedicated departments at each site. Based on the feedback received, the division identifies local issues and work together to explore collaborative solutions. Additionally, Hanwha Solutions operates an Ethical Management Hotline channel on our website to receive not only complaints from customers who have experienced unfair treatment but also inquiries and requests for support related to broader social issues. This communication channel is expected to serve as a meaningful tool for social contribution not only within the division but also across the broader industrial ecosystem and local communities.

Social Responsibility System

Hanwha Solutions has established a social responsibility system focused on climate action and community engagement, as part of our commitment to corporate social responsibility. Based on this system, we carry out a wide range of initiatives. Our Code of Ethics Practice Guidelines also include provisions related to social contribution, such as community engagement, environmental protection, and biodiversity conservation. In addition, we have set mid- to long-term goals for community engagement and developed detailed implementation plans for each phase to ensure a systematic approach to fulfilling our social responsibilities. Going forward, Hanwha Solutions will continue to develop meaningful and sustainable social contribution programs and strengthen communication with local communities.

Social contribution achievements

As of 2024, a total of 1,139 participants contributed 6,174 hours to Hanwha Solutions' social contribution activities.



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Hanwha Solutions' Social Responsibility Strategy



Mid- to long-term goals for promoting social responsibility

2024 - 2025	2026 - 2027	2028 - 2030
Strengthening local community-based social contribution activities	Establishing a sustainable social contribution system	Developing business-aligned social contribution initiatives
Developing five region-specific programs based on feedback from the Community Contribution Advisory Committee Developing one common company-wide program to address the climate crisis	Supporting five projects to improve environments in underserved communities Promoting five social contribution programs involving vulnerable groups in collaboration with local communities	Implementing at least one flagship program that creates social value aligned with the corporate business model

Identifying and Managing Negative Impacts on Local Communities

The **Chemical Division** recognizes the direct and indirect impacts that business activities may have on local communities. To proactively identify and address potential negative impacts, the division implements systematic management activities. These include analyzing outcomes, assessing effectiveness, and building trust with local communities through regular communication with various councils. Moving forward, the division will continue to actively listen to community voices and expand its positive contributions to society.

1 Identifying and recognizing issues

The Chemical Division identifies the direct and indirect impacts of its operations on local communities through ongoing communication with various councils and meetings. The division continuously gathers feedback through ongoing communication and plans to strengthen its early risk identification system by utilizing the Ethical Management Hottine channel to identify and respond promptly to potential community risks.

Case study

The **Chemical** Division identifies and recognizes the carbon emissions associated with the disposal of workwear and safety shoes and is addressing this issue through an awareness campaign. In collaboration with the Ulsan Community Self-Sufficiency Center, the division signed a memorandum of understanding (MOU) and carried out activities such as producing and distributing campaign promotional materials and conducting signature campaign.

② Response and management

After thoroughly assessing the situation through division-level personnel, the **Chemical Division** convenes relevant departments to conduct fact-checking and root cause analysis in a structured manner. The solutions derived through this process are implemented in cooperation with local communities, while also establishing preventive measures to support ongoing improvement and build trust.

Case study

To reduce the environmental impact of discarded workwear and shoes, the **Chemical** Division launched a resource-circulation initiative based on upcycling. The initiative aims to promote Net Zero while also supporting safe working environments for people with disabilities.

3 Outcome analysis and assessment

The **Chemical Division** analyzes the outcomes of activities implemented in local community to mitigate identified issues and evaluates the effectiveness of those efforts.

Case study

The upcycling campaign for workwear and safety shoes achieved 97% of its target. A performance review was conducted to analyze the gap between target and achievements, and its causes for such gap. The campaign also generated measurable results in support of Net Zero, including the reduction of 229.65 kg of clothing waste and 128 kg of CO₂ emissions.

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Social Responsibility Activities

Contributing to the community

Operation of the Climate Change Response Station

Background and key issues

In response to growing concerns over habitat degradation and the loss of biodiversity attributable to the climate crisis, Hanwha Solutions has recognized the need for proactive action. To detect the impacts of climate change at an early stage and conduct long-term ecological monitoring, we operate the Climate Change Response Station.

Expected outcomes

Establishing a long-term climate change monitoring system aligned with our ESG strategy, and building public consensus on the urgency of the climate crisis.

Support for solar power installations in park facilities

Background and key issues

From 2022 to 2024. Hanwha Solutions supported ESG projects to promote Net Zero in park facilities through ESG sponsorship projects. As part of these efforts, we supported the installation of solar power systems. In 2024. three carbon-neutral solar pole units were installed at campsites in Bukhansan and Gavasan National Parks.

Expected outcomes

Installing a hands-on, public-friendly carbonneutral solar pole at Sagimak Campground, the nation's first carbon-neutral campsite, contributing to raising public environmental awareness and reducing approximately 2.7 tCO2eq in carbon emissions annually through the production of 5,975 kWh of energy.

Supporting solar power systems for energy-vulnerable groups

Background and key issues

Recognizing the challenges faced by energyvulnerable communities due to energy shortages, the Qcells Division signed MOUs with organizations such as the Korea Energy Agency to provide free solar modules and power systems (20kW capacity) to social welfare facilities in the Busan area.

Expected outcomes

Installing solar power systems to reduce electricity costs at welfare facilities and promote the adoption of clean energy in local communities, generating electricity from eco-friendly solar energy to reduce facility electricity costs (a solar power system with a capacity of 20kW) and achieve an annual reduction of 12 tCO₂eg in carbon emissions.

Resource circulation campaign

Background and key issues

As part of its 2050 Net Zero strategy, the Chemical Division is promoting resource circulation initiatives to support communitydriven carbon neutrality and create a safer working environment for persons with disabilities. These efforts include upcycling workwear and safety shoes, as well as sharing the upcycled products through donation campaigns.

Expected outcomes

Improving the working environment for employees with disabilities and implementing carbon neutral by reducing 229.65 kg of clothing waste and reducing 128 kg of CO2 emissions.



Climate Change Response Station (exterior view)



Carbon neutral solar pole at Sagimak Campground, Bukhansan



Supporting solar power systems for energy-vulnerable groups



Resource circulation campaign

PART 2. **GENERAL ISSUE** PERFORMANCE

Community Development and Shared Growth





Social Responsibility Activities

Contributing to the community

Supporting cultural experiences for low-income and local residents

Background and key issues

The Qcells Division supported a local cultural event in response to a request from Jincheon County for cooperation on 'Jincheon County Day'. Around 300 county residents, including 100 socially vulnerable individuals, were invited to attend a baseball game.

In addition, the division has donated cultural sponsorship funds in support of Jincheon County's year-end concert, an annual event that fosters community spirit and enriches cultural opportunities for local residents.

Expected outcomes

- Contributing to community development by supporting sports attendance for socially vulnerable individuals and **sponsoring** local athletic programs
- Maintaining ongoing collaboration and positive relations with local governments where our business sites are located
- Enhancing our reputation as a leading local company through continuous sponsorship

Year-end concert

Providing educational and psychological support for vulnerable children

Background and key issues

The R&D Institute of the Chemical Division has been supporting environmental education for elementary school students from vulnerable groups by dispatching professional environmental instructors. In addition, employees have participated in the Gapcheon Plogging campaign to raise awareness of ecological protection.

Since 2021, the division has also continuously supported a psychological counseling program called Healing Stories, in which 10 to 13 children affected by abuse receive counseling from certified counselors in areas such as art, play, and language counseling each year.

Expected outcomes

Raising children's awareness of the importance of ecological conservation and encouraging environmentally responsible behavior through environmental education, and providing psychological counsellings to support emotional recovery and language development, with tangible outcomes such as three children affected by abuse being able to read and write as of 2024, and other children showing positive progress through sustained one-onone sessions with professional counselors.

Emotional and psychological support activities

Supporting household safety for vulnerable groups and local residents

Background and key issues

The Chemical Division, in partnership with the Ministry of Justice and other Hanwha Solutions affiliates, carried out housing repair and improvement projects for vulnerable residents. The initiative included expanding living spaces, repairing electrical systems, replacing window screens, fixing household appliances, and providing basic medical services.

Expected outcomes

Repairing electrical systems, wallpapering, replacing floor coverings, and fixing windows and screens at five senior community centers, along with providing home repairs for 360 households and food support for over 150 vulnerable households.



Hamkke Meolli: Supporting Island and Local Communities

PART 2. **GENERAL ISSUE** PERFORMANCE

Community Development and Shared Growth









Social Responsibility Activities

Contributing to the community

Operating a sports team for persons with disabilities

Background and key issues

The Qcells Division operates a sports team for persons with disabilities, consisting of 40 athletes across six disciplines. The division provides monthly salaries, custom uniforms, training equipment, and medical supplies to support the athletes' performance improvement.

At the 44th National Para Games, the team won a total of 30 medals, including the most medals in powerlifting and its first-ever gold medal in a team rowing event since its founding.

Expected outcomes

Creating 40 jobs by employing athletes with disabilities and contributing to the promotion and wider participation in para sports within the local community.

Care Kit donation program

Background and key issues

The Qcells Division organized the 'Qcells Care Kit donation program' for vulnerable households in the Jincheon area, using funds voluntarily raised by employees. In collaboration with local social welfare organizations, employees assembled and delivered kits containing daily necessities and food items to each household, demonstrating a spirit of generosity.

Expected outcomes

Providing practical support to vulnerable households of the local community by assembling and delivering 78 care kits containing daily necessities and food, funded by KRW 5 million voluntarily raised by employees, and contributing to strengthening ties with local residents.

Supporting partnered local child centers

Background and key issues

The **Chemical Division** provided opportunities for children from eight partnered local child centers to visit an aquarium. Many of these children may have limited access to cultural experiences due to family circumstances, including both parents working or other challenging home environments.

The initiative offered meaningful cultural experiences and helped the children form stronger connections with their peers.

Expected outcomes

Supporting children's social and emotional development through diverse cultural experiences and contributing to the alleviation of cultural isolation through exposure to new experiences.



Para sports team competition



Care kit donation program



Visit to Aqua Planet

PART 2. **GENERAL ISSUE** PERFORMANCE

Community Development and Shared Growth









Product Responsibility and Customer Satisfaction

Quality Management Governance

Establishing a Quality Management Policy

Hanwha Solutions has established and implemented a quality management policy to maintain consistent product quality and ensure that all employees clearly understand our direction and standards for quality. The policy is approved by the CEO and distributed and posted to each team to ensure all employees can review. We also make it available to external stakeholders through our website and other channels.

The **Chemical Division** puts customer value at the core of its business and strives to grow into a global chemical company by delivering high-quality products and services through mutual growth. To this end, the division has established and operates four division-wide quality strategies.

Four quality strategies across the Chemical Division



The **Qcells Division** has established four key quality enhancement initiatives for product categories that require strengthened quality control, aiming to enhance competitiveness and maximize customer satisfaction.

The **Insight** Division operates quality policies that focus on prompt issue response and recurrence prevention, while ensuring product performance and guaranteeing stable operational quality to meet customer expectations.

Quality Management Organizational Structure

Hanwha Solutions has established and operates a quality management governance that ensures our policies are clearly communicated from top management to on-site operations. This governance enables us to assign quality-related roles and responsibilities systematically across the organization.

The **Chemical Division** assigns specialized quality management teams and personnel by process, production stage, and product type. Both the Yeosu and Ulsan plants operate structured quality management systems. Each plant is led by the Quality Assurance Team Leader and is supported by safety and environment supervisors, as well as quality innovation teams. Under these units, product-specific quality management teams are organized to support efficient quality control.

The **Qcells Division**, has been operating an established quality management system that encompasses raw material quality, cell quality, module quality, and customer quality. In 2025, the division reorganized its quality teams to enhance expertise, improve efficiency, and advance customer-focused quality management. The raw materials quality team was integrated into the cell and module teams to streamline operations. To enhance responsiveness and expertise, the customer quality team was reorganized into separate domestic and international units.

In the Insight Division, quality personnel are assigned to each project site within the GES business office to manage on-site quality. In addition, headquarters quality staff within the GES support team oversee overall project quality and provide integrated support across all sites.

Quality Management System

Customer-focused Quality Management System

Hanwha Solutions carries out a range of activities to proactively manage risks that may arise from quality issues and to enhance customer satisfaction.

The **Chemical Division** visits customer sites to understand their needs and provide technical support. These include Hello Orange in Yeosu and customer technical support (T/S) in Ulsan. In 2024, the Yeosu plant conducted 50 visits, while the Ulsan plant carried out 13. These visits have contributed to product improvement and strengthened customer satisfaction. In addition, the division has advanced its CRM system by building a dedicated database for key customers' product quality specifications and integrating it into the CRM platform in 2024, leading to greater customer satisfaction.

In large-scale project contracts in the U.S. market, the **Qcells Division** reflects customer requirements throughout the entire process, from contract to production. During factory system inspections, customer requirements are incorporated into standardized audit scopes within contracts. Following contract signing, inspections are conducted across multiple customers and products.

In EPC projects, the **Insight** Division applies quality management standards that reflect customer needs and characteristics, thereby reinforcing customer-focused quality management. Issues and claims that may arise during the operational phase are systematically documented in a Lessons Learned database. Those data are shared and applied to future projects to prevent recurrence of similar issues and to drive continuous quality improvement.

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Product Responsibility and Customer Satisfaction

Quality Management Activities

Strengthening Quality Control

Hanwha Solutions operates a systematic quality control management across all production processes by division to reflect product specification requirements and ensure high product quality.

Key Quality Management Activities by Division

- · Conducting TOP (Total Operation Performance) programs that encourage all employees to propose ideas
- Holding S&OP (Sales and Operation Planning) strategic meetings. at the business unit level
- Establishing Data Reports for key QM control items within the MES system

Chemical

- Enhancing inspection reliability by updating PVC product analyzers and redefining quality standards
- . (Ulsan Plant) Enhancing competitiveness by researching advanced analyzers and conducting Q-Cost analysis
- (Yeosu Plant) Building a dashboard system for quality status monitoring of Wire&Čable products
- Reducing cell-related defect rates from 0.03% to 0.01% by improving module yield and introducing deep-learning inspection for finished cells
- Improving raw material quality through regular supplier evaluations, achieving a 10% defect rate reduction in raw

Ocells

Insiaht

- . Enhancing the quality of shipped cells by introducing deeplearning inspection and strengthening reliability tests at
- Strengthening raw material quality by introducing specialized inspections (managing oxygen and carbon concentrations on wafer/screen surfaces using FT-IR; monitoring thermal behavior of EVA using DSC; and inspecting screen specifications using automated optical microscopy)

 Supporting the effective implementation of on-site quality management activities by factoring in quality management costs and incorporating specific quality requirements into subcontractor contracts

assess and manage project-specific quality

· Quantifying quality levels using PQI (Project Quality Index) to

- · Conducting supplier screening with a quality focus, including quality evaluations during TBE (Technical Bid Evaluation) and performance-based supplier assessments
- · Promoting project quality improvement activities through newsletters and quality enhancement programs for suppliers

Enhancing Quality Competence

Fostering quality talent | Hanwha Solutions operates quality training programs to foster talent and embed a quality-first culture across the entire organization, alongside raising company-wide awareness of quality.

The Chemical Division provides site-specific quality training to drive continuous improvement. In 2024, the Yeosu plant conducted three training sessions, including basic quality assurance (PVC) and onboarding courses for new engineers. In 2025, the Chemical Division plans to strengthen quality capabilities by rotating the managers of QA units 1, 2, and 3. At the Ulsan plant, training programs included Measurement System Analysis (MSA) and in-house courses for new hires such as Understanding the Quality Assurance System and Understanding of Polymers. For 2025, the division plans to introduce practical training in areas like Q-Cost analysis, process quality control, and control chart utilization.

The Qcells Division strengthens employees' quality competence through a range of training programs, including ISO inspector certification, Statistical Process Control (SPC), and basic and advanced data analysis, and Excel-based statistical analysis. In 2025, the division plans to expand courses with advanced statistical analysis and data processing courses using Orange3, R, and Excel.

The Insight Division provides ISO 9001 training to all employees and offers role-specific courses such as new employee quality onboarding, internal inspector training, and programs for on-site quality managers. When a Lessons Learned case occurs, technical documents are shared with related project personnel to support continuous improvement. In addition, to improve supplier quality, the division conducts satisfaction

surveys and develops tailored training programs based on the results. A division-wide quality newsletter is also published to ensure all employees share a consistent understanding of quality.

Quality Risk Management

Acquisition and management of quality management certifications

Hanwha Solutions systematically manages quality-related risks by obtaining and maintaining and managing quality certifications for each business division, ensuring the delivery of high-quality products and services to our customers.

Status of Quality Certifications by Business Division

- · Quality Management System certification (ISO 9001:2015)
- BIS certification (renewed) for PE, Wire&Cable, PVC, PSR, VCM. and CA product deliveries
- KS certification (Korean Industrial Standards) for CA chlorine.

hydrochloric acid, and caustic soda products

- JHOSPA (Japan Hygienic Olefin and Styrene Plastics Association) certification for PE additives (LLD3120, LLD4300N, LLD4300)
- NSF (National Sanitation Foundation) certification for CA caustic soda and CPVC resin products
- · Sanitary safety certification for CA Hypo water treatment chemical

Ocells

- · Quality Management System certification (ISO 9001:2015)
- TÜV Rheinland Quality Controlled PV (QCPV) certification for solar
- Global certifications for solar module products (IEC, UL, KS, CFP)

• Quality Management System certification (ISO 9001:2015) for renewable energy plant business

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Product Responsibility and Customer Satisfaction

Quality Risk Management

Strengthening Customer Communication

Hanwha Solutions operates various customer communication channels and actively reflect customer feedback and suggestions to proactively prevent quality-related risks.

Operating the Voice of Customer (VOC) system | Hanwha Solutions operates a Voice of Customer (VOC) management system to respond swiftly and systematically to customer suggestions and complaints. VOCs are received, analyzed, and addressed in accordance with established procedures. Root causes of claims are carefully identified, and preventive measures are established based on the findings, ensuring active incorporation of customer feedback into quality improvement efforts.

VOC Handling Procedures by the Chemical Division

request

complaint



* When the division is not deemed responsible, a resolution is pursued through mutual consultation with the customer.

perception

Enhancing customer satisfaction | Hanwha Solutions places the highest value on customer satisfaction and continuously enhance our products and services by actively reflecting customer feedback across all

In the Chemical Division, the Base Chemical Business conducts customer satisfaction surveys biennially and plans to carry out the third round in 2025. Beginning with this round, the survey scope has been expanded to include not only the PVC business but also the CA and FM businesses, further reinforcing efforts to enhance satisfaction across all operations. In addition, the Polyolefin Business conducted a customer satisfaction survey during its 2024 Technical Academy event, gathering feedback from 24 clients on various areas, including product quality and packaging/logistics, to better understand and respond to their needs.

In the Qcells Division, quality is managed to a standard up to three times more stringent than that of the IEC (International Electrotechnical Commission). The division also conducts regular performance evaluations with domestic testing institutions such as YU, KCL, and Chungbuk TP, as well as STC. These rigorous processes allow the division to earn strong recognition from global certification bodies for the high quality of its products. In the Insight Division, the GES Business office collects feedback from clients and supervisors based on project performance. Surveys cover customer satisfaction in terms of quality, cost, and delivery (QCD), opinions on quality targets, and other concerns, all of which inform ongoing improvement efforts. Meanwhile, the Urban Development Business Unit conducts annual year-end email surveys with customers relocating to industrial complexes under development to identify their utility usage plans and demand. These surveys, based on client email contacts gathered at the time of contract, help ensure smooth move-ins and timely utility provisioning.

Qcells Division Product Quality Highlights in 2024

PVEL 2024 PV Module Reliability Scorecard

• Top Performer for the 9th consecutive year

EUPD Research 2024 Top Brand PV

- · Selected in the U.S. for 3 consecutive years
- · Selected in Europe for 11 consecutive years

2024 Germany Life & Living Award

· Ranked No.1 in the solar category for 5 consecutive

Solar Module Market Share by Wood Mackenzie

- · Achieved the No.1 ranking in residential modules for 7 consecutive years
- . Achieved the No.1 ranking in commercial modules for 6 consecutive years

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Privacy and Cybersecurity

Information Security Governance

Hanwha Solutions has established and operates a structured information security governance system to protect the information of customers and suppliers and ensure compliance with domestic and international laws and regulations. Through this system, we effectively manage information security risks, maintain a sustainable security system, and strengthen corporate credibility and competitiveness.

Hanwha Solutions' Information Security Office oversees the company-wide security system under the leadership of the Chief Information Security Officer (CISO), who brings extensive experience in the field. Led by the CISO, the office is responsible for managing all company-wide, including international, activities related to personal data protection, administrative security, incident response, system security, and the planning and auditing of security measures. It also drives the establishment and revision of security policies and the planning and implementation of related initiatives for each husiness division

In cases where key decisions regarding information security are required, the Information Security Office conducts a thorough review. The matter is then reviewed by the CISO, DT lead, and head of operations in a structured decision-making process and then reported to the management.

Information Security System

Information Security Policy

Hanwha Solutions has established and implemented an internal information security policy based on relevant domestic laws and regulations. Our internal information security policy serves as the foundation for this system.

To reflect updates in personal information protection laws and other regulatory changes, as well as shifts in the external and internal security environment. Hanwha Solutions revises our information security policy annually. All revisions are approved by the Chief Information Security Officer (CISO), the DT lead, and the CEO of each business division. The revised policies are published on our internal groupware platform, Cleverse, to ensure that all employees are informed.

Privacy Policy

Hanwha Solutions has appointed dedicated personnel responsible for overseeing all matters related to personal information protection, including inquiries, complaints, and remediation. To safeguard personal data, each division operates its own privacy policy in accordance with the Personal Information Protection Act.

Privacy Policy by Division
at Hanwha Solutions
S Chemical Division
S Qcells Division
S Insight Division

Information Security Strategy

Establishing information security goals I Hanwha Solutions establishes annual information security goals to strengthen management system, reflecting our business direction and changes in internal and external environments. To support goal achievement, we set detailed objectives and implementation plans that take into account the increased information security risks associated with global business expansion and the growing demand to enhance domestic security systems.

Information Security Goals and Strategies

Goals	Implementation Plans		
Establishing a globally integrated information security management and governance system	Conducting inspections and improvement activities at domestic and overseas sites Developing and evaluating a model to assess information security maturity		
Strengthening responses to information security risks	Performing simulated cyberattack penetration tests Identifying and addressing vulnerabilities through security verification Establishing an attack surface management system		
Enhancing incident response capabilities and raising employee awareness of security	Responding to new vulnerabilities and anomalies Conducting phishing response training for employees at domestic and overseas sites Providing ongoing information security training and guidance to domestic and overseas employees		

Key areas of information security management | Hanwha Solutions has established and systematically operate four key management areas as the foundation for strengthening information protection and security. We take a comprehensive approach that spans planning, evaluation, improvement, and training to ensure a robust and secure information environment.

The Four Key Areas of Information Security Management

① Establishing, implementing, and improving information security plans	Identifying and assessing information security risks and establishing countermeasures
③ Conducting regular reviews of the current status and implementing improvements	 Planning and implementing information security training and simulation exercises

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Privacy and Cybersecurity

Information Security Activities

Enhancing Cybersecurity Incident Response Capabilities

Phishing simulation and penetration testing exercises | To raise awareness of security incidents and strengthen our response capabilities in real-world scenarios, Hanwha Solutions conducts preventive training programs. We carry out phishing email simulations using a variety of scenarios, such as fake invoices, résumés, buyers, and quotations, targeting both domestic and international sites. In addition, each division conducts tailored penetration tests that simulate attacks exploiting internal network vulnerabilities.

sites I To strengthen the information security management systems of our overseas operations, Hanwha Solutions conducted assessments and improvements based on Cybersecurity Performance Goals (CPG). We also conducted phishing email simulation exercises in the first and second halves of the year, and implemented targeted penetration

tests at selected overseas sites to identify and

resolve vulnerabilities. Furthermore, we distributed

security training materials to help local employees

understand proper cybersecurity response

procedures.

Information security activities at overseas

Operation of a cybersecurity monitoring center |

To respond promptly to cyber threats and breaches, Hanwha Solutions operates a 24/7 integrated security monitoring center. Through real-time traffic monitoring, we detect and block malicious code and external hacking attempts at an early stage. When the volume of data transmission surpasses a certain threshold, the system immediately identifies it and initiates countermeasures. This allows us to effectively block malicious and suspicious traffic and protect our information assets.

Raising Employee Awareness of Information Security

Hanwha Solutions provides online training through our internal platform (Ch.H+) to enhance all employees' ability to respond to cyber threats and to foster a stronger sense of responsibility for information security. In response to the growing number of hacking and ransomware attacks both domestically and abroad, as well as the increasing frequency of cybersecurity incidents caused by malicious emails, we provided training on topics such as phishing email prevention, password management, response to data breaches, and the safe use of generative Al. The training was designed to raise employees' security awareness and enhance their ability to effectively respond to various cybersecurity risks. We also provide information security awareness training to all new hires, encouraging every employee to recognize the importance of security and data protection.

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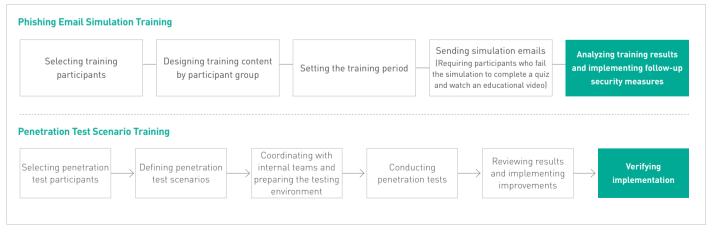
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APPENDIX

Training Procedures for Cybersecurity Incident Response







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Information Security Risk Management

Information Security Risk Management Activities

Infrastructure vulnerability assessments | To verify the latest security status of our IT systems, Hanwha Solutions conducts infrastructure vulnerability assessments twice a year. We continuously address any vulnerabilities identified through these assessments. We also review and mitigate security vulnerabilities during the introduction of new assets or systems to support the development of secure and reliable systems. We also apply secure coding practices to rigorously assess system security.

Attack surface management (ASM) I The term attack surface refers to externally exposed systems, unmanaged security vulnerabilities, and exposed accounts or system information. Hanuha Solutions has established an attack surface management (ASM) framework to effectively manage these risks. Through this system, we proactively respond to potential attack surfaces that are exposed to the internet and could be exploited in actual hacking attempts. We also immediately investigate and respond to any newly discovered vulnerabilities, integrating them into our security review procedures to prevent security incidents.

Data protection | In addition to cybersecurity measures, Hanwha Solutions implements data protection activities to safeguard our assets. All employees are required to install key security programs such as document encryption (DRM) and device control solution (DLP) on their PCs. These tools encrypt work documents and control access to storage devices such as USB drives, reinforcing our data security practices.

Customer information management | Hanwha

Solutions operates a rigorous management system to protect customers' personal information. When employees handle customer data, we verify the appropriateness of its use and access rights. To prevent unauthorized external access, we have established access control procedures. We also maintain Personal Data Protection Liability Insurance and conduct regular inspections of our personal information processing systems to protect data subjects' rights and ensure safe data management.

Additionally, we provide training for employees who handle personal data to further strengthen customer privacy protection.

Information security maturity assessment | To

evaluate information security maturity, <code>HanwhaSolutions</code> has developed an internal assessment model covering four areas: management and physical security, information system security management, information system operations, and personal data protection. We conduct annual evaluations using detailed checklists for each area. Improvement items identified through the assessment are reflected in our information security objectives and continuously addressed. We also monitor whether these improvements have been effectively implemented.

Information Security Maturity Assessment Areas

Assessment areas	Detailed evaluation items	
Management and physical security	Establishment and operation of an information security management system management of information assets, etc. Servers, networks, databases, PCs, and cloud environments	
Information system security management		
Information system operations	Security vulnerability and patch management, along with backup and log handling	
Personal data protection	Collection, use, destruction, and provision of personal data	

2024 Information Security Maturity Assessment Results



Supplier information security risk management

To prevent the leakage of sensitive company information or personal data through suppliers, Hanwha Solutions requires all partners to sign a security agreement as part of their contracts. Upon contract termination, we verify whether personal data has been properly managed and disposed of. Furthermore, we include supplier personnel who use our email system in Hanwha Solutions' quarterly phishing simulation training. This helps raise awareness of information security risks and strengthens our collective response to potential cyberattacks.

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Risk Management

Risk Management Governance

Risk Management Organizational Structure

Hanwha Solutions systematically manages various risks that may arise in the course of our business activities by identifying them and implementing structured responses. Risk refers to the potential for loss due to future uncertainties, and our risk management process encompasses a series of activities including identifying risks, assessing their severity, developing and implementing response plans, and preparing outcome reports and evaluating the results. To enhance the effectiveness of our risk management efforts and to facilitate coordination and review of cross-functional risk issues, Hanwha Solutions operates a Risk Council. This council performs a deliberative function within our company-wide risk management system by reviewing the appropriateness of risk identification results, assessments, and response plans submitted by working-level departments, and proposing improvements where needed. It is composed of team leaders or higher-level managers from relevant departments such as strategic planning, environmental safety, climate change, and finance. The secretary of the council is designated by our Compliance Office. The council meets at least once a year on a regular basis and may convene on an ad hoc basis as necessary.

To ensure structured and consistent risk management at the enterprise level, <code>Hanwha Solutions</code> has designated the Compliance Office within the <code>Strategy Division</code> as our central risk management department. It is responsible for overall planning, operational oversight, and reporting risk management activities to the board of directors. The Compliance Office handles key functions such as establishing company-wide risk management plans, developing procedures and standards, and operating the risk assessment framework. It also reviews the appropriateness of risk assessments and response plans prepared by working-level departments. When needed, it coordinates Risk Council deliberations and reports to the board to ensure transparency and structure in our risk management efforts.

Hanwha Solutions' working-level departments serve as the key responsible units for company-wide risk response. They are responsible for identifying and assessing various risks at the operational level, developing response plans, and implementing them to prevent incidents and minimize potential damage. Each department conducts at least one internal risk assessment annually and submits its risk assessment form to the Compliance Office. In the assessment process, risks are categorized by level based on significance, potential impact, and likelihood. Departments also participate in the Risk Council as needed to align on the appropriateness of response plans. After implementing the responses, they submit follow-up evaluations to complete the risk management cycle. Through these responsibilities, working-level departments play a key role in frontline risk response and timely implementation within our risk management system.

Risk Management Organizational Structure Key deliberation items **Board of directors** • Reviewing the appropriateness of the risk management plan and key areas of focus · Reviewing the risk identification and assessment results submitted by working-level departments Risk Council • Evaluating the adequacy of proposed response plans · Reviewing response outcomes and evaluation reports · Assessing the need to establish or revise risk-related policies and procedures Key responsibilities • Establishing the company-wide risk management framework and operational standards Lead department · Reviewing and finalizing risk assessments and response plans (Compliance Office) Consolidating results from working-level departments and determining risk levels Reporting annual risk assessments and response activities to the board of directors • Operating the Risk Council and serving as its • Updating the risk management system in response to legal and environmental changes Kev working-level departments Key responsibilities ① Corporate Planning Team, · Identifying and assessing risks at the business or Chemical Division organizational level 2 Safety, Health & Environment · Developing and implementing response plans Office, Chemical Division · Preparing risk assessment forms and reporting to the 3 Corporate Planning Team, lead department Ocells Division Participating in the Risk Council and coordinating risk levels when necessary EHS Department (CSO), Conducting follow-up evaluations and submitting **Ocells** Division outcome reports after implementing response ⑤ Planning Team, measures

Insight Division

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Risk Management

Risk Management System

Risk management process I Hanwha Solutions has established and operates a structured risk management process to systematically identify and minimize risks that may arise across our company-wide business activities. To strengthen company-wide risk management, we revised our risk management regulations by clearly defining procedures and developing detailed implementation rules and supporting policies. These efforts have enhanced the structure and effectiveness of our risk management system.

Our risk management process consists of five key stages: identifying risks, assessing risks, developing and implementing response plans, evaluating the outcomes of those actions, and reporting to and obtaining approval from the board of directors. Risk identification and assessment are conducted by each business division using standardized risk assessment templates. Based on the results, our Compliance Office develops and implements response measures. The results are then evaluated and reported to the board for final approval.

This process is carried out annually, with regular risk assessments conducted in the first quarter of each year. The results are submitted to the board for final approval. In addition, ad hoc risk assessments are conducted when needed. Each department also conducts ongoing reassessments to monitor potential emerging risks and take immediate response measures when necessary. This entire risk management process is carried out over the course of a year and plays a critical role in enhancing the structure and efficiency of our risk management efforts. Through this process, **Hanwha Solutions** continues to enhance our company-wide risk management capacity and improve the overall effectiveness of our risk response efforts.

• Identifying risks by working-level departments STEP 1 Risk identification Preparing risk assessment templates by division. · Conducting the Initial risk assessment by relevant departments STEP 2 Risk assessment - Classifying risk levels as Level I, II, III, or no level - Reassessing risks through the Risk Council if necessary • Notifying working-level departments of final risk levels by the responsible department plementation of response plans • Preparing risk response plans by working-level departments · Establishing response measures for each identified risk Implementing response plans and preparing outcome reports and STEP 4 Evaluation of response outcomes · Assessing the effectiveness of the response and re-evaluating risk ratings assigned to the working-level departments Monitoring results through risk-level-based management meetings Reviewing annual risk management activities and preparing improvement Reporting to and approval measures through Risk Council meetings by the board of directors Reporting and obtaining board approval on annual risk management

activities and improvement plans

Risk assessment and management approach I Hanwha Solutions assesses risks based on likelihood and impact, and assign risk levels by considering factors such as strategic importance, urgency, and managerial implications. For risks classified as Level I to III, the responsible departments develop and implement response plans, and evaluate their effectiveness. The outcomes are then reviewed by the lead department and deliberated by the risk council before being reported to the board of directors.

Response measures by risk level



1) Notifying the responsible risk management department in the event of newly identified risks or changes in risk level

Management strategies by risk type | Hanwha Solutions classifies risks by type and have established and implemented systematic management frameworks for both financial and non-financial risks as part of our commitment to sustainable management.

Financial risks Continuously monitoring volatility in areas such as markets, liquidity, and capital

Managing and responding to tax-related risks

Non-financial risks

- Including external risks such as climate change and shifts in market conditions
- Identifying risks related to sustainability, human rights, and safety

Corporate income tax payments on a consolidated basis^{2,3)}

Category	Tax jurisdictions	Number of entities	Corporate income tax payments	Currency code
	Netherlands	8	3,750	
Europo	Germany	24	△146,125	EUR
Europe	United Kingdom	3	767,303	EUR
	Poland	2	8,507	
	Republic of Korea	32	17,593,875,638	KRW
	Malaysia	3	10,499,759	MYR
Asia	Japan	3	30,696,651	JPY
	China	14	11,385,102	CNY
	Thailand	2	13,103,750	THB
North America	United States	143	10,439,134	USD
South America	Chile	4	901.082	CLP

- 2) In Korea, corporate income tax filings are made by the end of March following the close of the fiscal year. However, in certain foreign jurisdictions, filings may occur between late June and mid-October. As a result, the precise amount of corporate income tax paid can only be determined by the end of the following year. Accordingly, the figures presented above reflect corporate income tax payments for the 2023 fiscal year.
- 3) The corporate income tax expense for 2023 was calculated by applying the respective corporate tax rates of each country to the taxable income of each entity.

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Risk Management

Risk Management Activities

Risk identification and management by division | In 2024, Hanuha Solutions established and implemented response plans for key risks identified during the year. The effectiveness of these measures was evaluated, and the results were reported to the Board of Directors.

Risk management status by division

Category	Identified key risks	Risk mitigation measures and results	Future plans	Effectiveness of measures
Strategy	Liquidity risk	Conducting daily checks on cash requirements to secure payment funds in advance Maintaining a certain amount in a flexible account to respond to irregular funding needs	Updating weekly cash flow plans for each division and conducting daily checks on cash outflows, along with managing available funds by period to meet anticipated demands Strengthening communication with relevant departments and managing unexpected cash outflows	Minimizing risks through continuous response efforts No change in the factors determining the risk level
	Risk of fund misappropriation	Establishing and implementing step-by-step internal processes from vendor registration to fund disbursement	Continuously reviewing and supplementing internal procedures related to inflows and outflows to proactively eliminate potential risks	Minimizing risks through continuous response efforts No change in the factors determining the risk level
	Changes in consumer behavior	Monitoring and responding to changes in consumer behavior Promoting long-term risk responses through the use of recycled and bio-based raw materials Assessing energy usage by production process Providing ISCC Plus certification training to clients and strengthening collaboration Completing ISCC Plus certification renewal	Continuing to pursue mid- to long-term response initiatives Identifying measures to reduce energy consumption by process Expanding customer collaboration and strengthening the sales network	No change in risk level due to ongoing mid-to long-term measures Verifying sustainable production processes through ISCC Plus certification renewal
	Risk of injury-related incidents	Preparing the 2024 health and safety plan and reporting to the Board of Directors Monitoring monthly company-wide and site-level preventive activities and reporting to the CEO Sharing incident cases from other companies across the organization	Preparing the 2025 health and safety plan and reporting to the board of directors Monitoring preventive activities on a monthly basis at the company-wide and site levels and reporting to the CEO Sharing internal and external incident cases across the organization	Preventing accidents by establishing and implementing a health and safety plan, ensuring stable operation of the H&S management system
Chemical	Changes in consumer behavior and prejudice against existing business areas	Manufacturing products using recycled/bio-based materials and obtaining relevant certifications Sharing carbon footprint information	Updating the LCA including carbon footprint	Reducing impact level by expanding the use of recycled, bio-based materials and sharing carbon footprint
	Growing demand for renewable energy use	Identifying renewable energy needs and monitoring related policy trends Providing opinions on PPA policies and monitoring the renewable energy market	Monitoring relevant government policies and providing opinions Continuously monitoring the renewable energy market	Lowering risk through continuous monitoring
	Increasing demands from customers, investors, and stakeholders for ESG (climate) information and evaluation results	Participating in CDP Climate Change and Water programs and preparing for IFRS S2 disclosures Reviewing ESG assessment criteria and implementing improvement initiatives	Monitoring the ESG disclosure roadmap and the final draft of disclosure standards Preparing supplementary measures for ESG evaluations	Reducing likelihood and impact level of risks by identifying related issues in advance
	Supply chain risk management in response to the U.S. UFLPA	Ensuring U.Sbound products are free of Xinjiang-origin materials in compliance with the UFLPA	Continuing to ensure U.Sbound products are free of Xinjiang-origin materials in compliance with the UFLPA	Mitigating UFLPA-related risks by ensuring U.Sbound products are free of Xinjiang-origin materials No change in risk level
Qcells	Longer lead times and delivery delays due to geopolitical issues	Identifying alternative maritime routes to minimize delivery delays Implementing alternative transportation strategies to reduce lead times	Identifying alternative transport routes in response to logistical disruptions and lead time increases due to geopolitical issues, and coordinating in advance with relevant departments in case of inventory shortages	Minimizing risks such as logistics disruptions and inventory shortages by identifying countermeasures
	Transportation disruptions caused by labor strikes in inland transport and port operations	Monitoring and responding to risks of inland transportation and port labor strikes Developing alternative routing plans and lead time reduction measures	Monitoring potential strikes on an ongoing basis and establishing preemptive response measures	Minimizing transportation disruptions through various contingency plans in the event of a strike No change in risk level
Insight	Risk of fines and legal sanctions due to noncompliance with the internal control over financial reporting (ICFR)	Conducting design and operational evaluations of the internal control over financial reporting (ICFR)	Reviewing measures to advance the internal control over financial reporting	Demonstrating effectiveness as an internal control over financial reporting

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Risk Management







Risk Management

Risk Management Activities

Risk management by type | Hanwha Solutions identifies key risks by type based on the results of our double materiality assessment and manages them by assessing their risk levels. In 2024, we established and systematically implemented response plans for major financial and non-financial risks at the company-wide level in accordance with our Company-wide Risk Management Policy. We also report our risk management activities to the board of directors.

Key risk response measures and major ESG issues

Category	ldentified key risks	Actions taken	Core ESG issues
Financial risks	Financial risks (e.g., internal controls, liquidity risk)	Conducting design, operation, and evaluation of the internal control over financial reporting (ICFR) Analyzing daily, weekly, monthly, and quarterly cash flow plans and performance Managing the risk of fund misappropriation by refining step-by-step internal processes from vendor registration to payment	Strengthening Compliance and Ethics Management
	Safety risks (e.g., serious industrial accidents, fire and explosion incidents, product defects)	Establishing health and safety plans and reporting to the board of directors Installing negative pressure containment facilities to eliminate risks of equipment damage and leakage Fully revising safety management guidelines for each laboratory and company-wide safety and health regulations	• Safety & Health Management
	Market risks (e.g., market uncertainty, interest rate hikes)	Expanding the share of new businesses and liquidating receivables and assets Analyzing investment costs and conducting sensitivity analyses by factoring in exchange rate fluctuations during economic feasibility reviews Promoting the production and sale of bio-attributed PVC to address the risk of fossil-based raw material price increases (Chemical Division)	Development of sustainable products and technologies
Non-	Supply chain sustainability risks (e.g., logistics disruptions due to strikes, use of raw materials from Xinjiang)	Ensuring products are free of Xinjiang-origin materials in compliance with the UFLPA Securing alternative transportation routes	ESG management in the supply chain
financial risks	Financial risks (e.g., internal controls, liquidity risk) Safety risks (e.g., serious industrial accidents, fire and explosion incidents, product defects) Market risks (e.g., market uncertainty, interest rate hikes) Supply chain sustainability risks (e.g., logistics disruptions due to strikes, use of raw materials from Xinjiang) Risks related to policy changes and legal/regulatory violation (e.g., changes in government policies, technology leakage, violations of fair trade or subcontracting laws) Environmental incidents, compliance with integrated environmental permit conditions, and adherence to disclosure requirements under amendments to the Chemical Control Act) Climate-related risks (e.g., changes in consumer behavior, increasing demands from customers and investors for climate-related disclosures and ESG evaluation results) Climate-related risks e. Conducting design, operation, and e. Analyzing daily, weekly, monthly, and e. Analyzing the share of new busines of harbling persistence of the safety plans of the substitution of new busines of new busines. Environmental risks e. Ensuring products are free of Xinjian of Securing alternative transportation. Providing periodic training on the substitution of the subst	Providing periodic training on the supply price indexation system Operating internal transaction reviews by division Establishing trade secret management regulations and creating and revising standard contract templates Monitoring regulations related to the Emissions Trading Scheme (ETS) and assessing the potential impact on Hanwha Solutions	Strengthening Compliance and Ethics Management Climate Change Response and Net Zero
	(e.g., environmental incidents, compliance with integrated environmental permit conditions, and adherence to disclosure requirements under	 Preparing safety, health, and environment plans and planning accident prevention activities Monitoring incidents and sharing case studies across the organization Installing dust boxes and proceeding with RTO connection and capitalization Completing installation of hazardous chemical signage 	Environmental Impact Management and Reduction
	(e.g., changes in consumer behavior, increasing demands from customers and	Implementing reduction activities such as purchasing renewable electricity (e.g., REC/PPA) Monitoring domestic and international GHG-related regulations including the Emissions Trading Scheme and carbon border taxes (CBAM/CCA) Disclosing climate and environmental information (e.g., sustainability reports, environmental information disclosure system, CDP Climate Change and Water Security)	Climate Change Response and Net Zero

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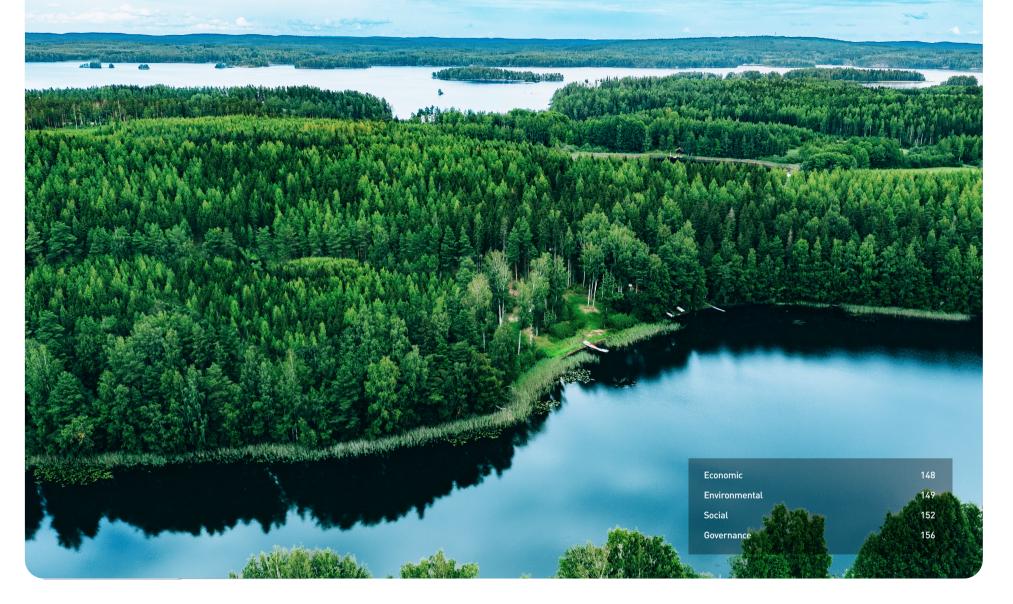
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Economic

Consolidated Financial Statement¹⁾

Category	2024	2023	2022
Assets			
Current assets	10,882,665	9,797,372	9,782,919
Cash and cash equivalents	2,184,381	1,958,055	2,616,168
FVPL – financial assets	-	43,361	41,825
Other financial assets	385,043	336,352	420,043
Accounts receivables and other receivables	2,956,245	3,176,119	3,148,898
Other current assets	946,833	794,432	383,749
Inventories	4,257,548	3,447,481	3,117,035
Current income tax assets	55,312	41,572	17,947
Non-current assets held for sale	97,303	-	37,254
Non-current assets	19,154,166	14,993,052	14,297,068
FVTPL – financial assets	232,709	280,682	222,561
FVOCI – financial assets	8,629	8,695	58,152
Other financial assets	263,761	205,259	356,313
Long-term sales receivables and other receivables	146,017	687,454	279,243
Investments in associates and joint ventures	4,930,447	4,159,718	3,757,637
Investment property	196,568	191,667	378,117
Property, Plant and Equipment	10,726,964	7,049,783	6,883,149
Intangible assets	1,755,743	1,772,576	1,649,970
Right-to-use asset	294,969	226,467	406,101
Other non-current assets	308,993	226,456	103,458
Deferred tax assets	289,366	184,295	202,367
Total Assets	30,036,831	24,790,424	24,079,987

¹⁾ From 2024, financial and non-financial businesses have been disclosed on a consolidated basis, and the comparative statements of financial position for 2022 and 2023 have also been restated using the same standard.

		(110)	t: KKW IIIItion
Category	2024	2023	2022
Liabilities			
Current liabilities	11,707,552	8,734,110	8,176,404
Accounts payables and other payables	2,923,263	2,108,399	2,388,214
Borrowings	6,299,067	3,788,198	3,002,811
Other financial liabilities	1,206,746	2,023,899	1,903,576
Provisions	69,368	43,031	47,870
Other current liabilities	1,150,315	727,536	446,609
Current corporate tax liabilities	36,077	43,047	387,324
Liabilities held for sale	22,716	-	-
Non-current liabilities	7,722,423	6,776,077	5,803,210
Long-term accounts payables and other payables	50,436	47,801	39,969
Long-term borrowings	6,422,869	5,561,746	4,205,363
Other financial liabilities	454,595	468,022	701,642
Net defined benefit liabilities	343,427	356,453	397,180
Long-term employee benefit liabilities	42,613	30,188	29,664
Provisions	156,403	133,910	127,550
Other non-current liabilities	20,034	8,088	27,296
Deferred tax liabilities	232,046	169,869	274,546
Total liabilities	19,429,975	15,510,187	13,979,614
Equity			
Equity attributable to owners of the parent	9,449,650	8,117,167	9,124,033
Capital stock	888,569	888,569	978,241
Hybrid capital securities	696,794	-	-
Capital surplus	1,562,421	1,496,294	2,320,051
Capital adjustment	(150,372)	(135,082)	[154,154]
Accumulated other comprehensive income	2,319,803	257,959	215,028
Retained earnings	4,132,435	5,609,427	5,764,867
Non-controlling interest	1,157,206	1,163,070	976,340
Total capital	10,606,856	9,280,237	10,100,373
Total liabilities and equity	30,036,831	24,790,424	24,079,987

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(Unit: KRW million)

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Environmental¹⁾

	Category	Unit	2024	2023	2022
Greenhouse Gas (GHG)					
Total GHG emissions	Corporation		2,500,631	2,472,717	2,435,021
(Scope 1 + Scope 2) 21, 51	Consolidated ^{3], 4]}	2,500,631 2,472 2,928,977 2,959 378,574 362 124,315 124 Included in Scope 2,122,057 2,110 304,032 362 Included in Scope 8,743,151 8,031 6,321,879 6,078 24 305,790 161 3,415 3 6,320 7 Not calculated Not calculated 15,341 16 3,415 3 6,320 7 Not calculated Not calculated 147 76 Not calculated Not calculated 0 147 72 0 2,008,929 1,662 0 150,2eq 160,2eq 160,2eq 160,2eq 160,2eq 170,2eq 180,3117 51 180,3117 51 180,3117 51 180,3117 51 180,3117 51 180,3117 51 180,3117 51 36,320 36,320 36,321 36,320 36,321 37 37 37 37 37 37 37 37	2,959,725	3,003,363	
	Corporation ²		378,574	362,207	377,730
	Subsidiaries ^{4]}		124,315	124,586	142,616
emissions (acope 1)	Associates / Joint ventures	2,500,631 2,472,717 2,928,977 2,959,725 378,574 362,207 124,315 124,586 Included in Scope 3 Catego 2,122,057 2,110,510 304,032 362,422 Included in Scope 3 Catego 8,743,151 8,031,003 6,321,879 6,078,010 24 67 305,790 161,967 46,721 16,091 3,415 3,676 6,320 7,140 Not calculated	egory 15		
La d'accel anno an bassas anno	Corporation ^{2], 5]}		2,122,057	2,110,510	2,057,290
	Subsidiaries ^{4), 5)}		304,032	362,422	425,726
Corporal Consolid C	Associates / Joint ventures		Included	d in Scope 3 Cat	egory 15
	Subtotal ⁷⁾		8,743,151	2,959,725 3,003 362,207 377 124,586 142 ed in Scope 3 Category 15 2,110,510 2,057 362,422 425 ed in Scope 3 Category 15 8,031,003 7,935 6,078,010 5,746 67 161,967 158 23,164 49 16,091 111 3,676 22 7,140 8 Not calculated Not calculated Not calculated Not calculated O 2,685 3 81 0 1,662,031 1,834	7,935,396
	Purchased goods and services ^{7], 8]}	2,500,631 2,472,717 2,928,977 2,959,725 378,574 362,207 124,315 124,586 Included in Scope 3 Ca 2,122,057 2,110,510 304,032 362,422 Included in Scope 3 Ca 8,743,151 8,031,003 6,321,879 6,078,010 24 67 305,790 161,967 78,113 23,164 15,341 16,091 3,415 3,676 6,320 7,140 Not calculated Not calc	5,746,960		
	2. Capital goods		24	67	150
Cor Sub	3. Fuel- and energy-related activities		305,790	161,967	158,149
	4. Upstream transportation and distribution	tCO₂eq	78,113	23,164	49,268
	5. Waste generated in operations		15,341	16,091	11,724
	6. Business travel		3,415	3,676	2,935
	7. Employee commuting		6,320	7,140	8,541
	8. Upstream leased assets		Not calculated	Not calculated	Not calculated
	9. Downstream transportation and distribution		147	76,091	119,679
	10. Processing of sold products ⁹		Not calculated	Not calculated	Not calculated
	11. Use of sold products		0	0	0
	12. End-of-life treatment of sold products		3,121	2,685	3,165
	13. Downstream leased assets		72	81	92
	14. Franchises		0	0	0
	15. Investments		2,008,929	1,662,031	1,834,733
Biogenic CO ₂ emissions ⁸⁾			0	0	0
GHG emission intensity ¹⁰⁾		KRW 100	41	34	26
	Total reductions (Scope 1 + Scope 2)		23,117	51,474	15,818
Greenhouse gas reductions ^{10), 11)}	Scope 1 reductions	tCO2eq	281	10,081	0
reductions	Scope 2 reductions		22,836	41,393	15,818

^{*} Scope of environmental performance reporting: [GHG and energy consumption] Domestic sites including the Seoul headquarters and the Yeosu, Ulsan, and Jincheon plants are considered to the property of the performance reporting of the property of the performance reporting of

	Categor	ту	Unit	2024	2023	2022
Energy use						
Total energy consumpti	on ^{12], 13], 14]}			24,888,381	26,533,123	25,091,84
	Subtotal			4,514,043	4,529,553	5,560,68
tal energy consumption rect energy nsumption direct energy nsumption and sales nergy consumption integry consumption out	Gasoline			10,935	9,410	9,68
Dinantanan	Diesel			16,308	26,255	25,31
٠,	Kerosene			7,891	8,236	7,77
consumption	LNG			2,388,324	2,363,771	2,006,30
	LPG			580,967	604,479	526,05
	Other			1,509,619	1,517,402	2,985,55
		Subtotal ^{12], 13]}		20,374,338	22,003,571	19,531,16
	Consumption	Electricity ^{12), 13)}		14,416,939	15,831,397	13,908,17
		Steam	GJ	5,957,399	6,172,174	5,622,98
irect energy consumption Indirect energy consumption and sales Inergy consumption in Inergy consumption ou		Subtotal ^{12), 13)}		20,717	14,995	9,50
		Electricity ^{12], 13]}		20,717	14,995	9,50
Indirect energy		Cooling		0	0	
3,	production	Heating		0	0	
consumption and sates		Steam		0	0	
Energy consumption LPG		Subtotal		0	0	
	Electricity		0	0		
	Sales volume	Cooling	A,514,043 4,529,553 10,935 9,410 16,308 26,255 7,891 8,236 2,388,324 2,363,771 580,967 604,479 1,509,619 1,517,402 20,374,338 22,003,571 14,416,939 15,831,397 20,717 14,995 20,717 14,995 0			
		Heating		0	0	
		Steam		0	0	
Energy consumption int	tensity ¹²⁾		GJ / KRW 100 million	406	363	27
Energy consumption ou		nization		N/A	N/A	N/
	Subtotal ^{11], 12]}			303,178	574,833	182,87
	Gasoline			0	52	
	Diesel			2,457	0	
Total energy consumption 121, 131, 136 Direct energy consumption Energy consumption Indirect energy consumption Indirect energy consumption intensity 121 Energy consumption outside of to Energy consumption Energy consumption outside of to Energy consumption energy consumption energy consumption energy consumption energy consumption intensity 121 Energy consumption outside of to Energy consumption energy	Kerosene			1,380	0	
	LNG ^{11]}		0.1	94	73,129	
			GJ	2,474	0	
	Electricity ^{11], 12]}			75,989	207,150	56,67
	Cooling			0	0	
	Heating		4,514,043 4,5 10,935 16,308 7,891 2,388,324 2,5 580,967 6 1,509,619 1,5 20,374,338 22,6 14,416,939 15,8 6,3 5,957,399 6, 20,717 20,717 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0		
	Steam ¹¹⁾			220,489	160,588	126,20
	Other ^{11]}			296	133,914	
			MWh	45,146		71,05
		l on energy consumption 12], 13)	0/	0.7	1.2	1.
			%	4.4	2.1	1.8

^{10) 2022} data from the previous report were revised due to error corrections.

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^{**} Total figures may differ by ±1 due to rounding.

¹⁾ Environmental data for 2022, 2023, and 2024 represent the combined total of the Chemical, Qcells, and Insight Division.

²⁾ Coproration's GHG emissions for 2024 are based on submitted emission statements and may be revised later; 2023 emissions of Corporation were updated following the Ministry of Environment's evaluation of validity.

³⁾ The figures include emissions from the corporation and its subsidiaries; in the previous report, figures were based on the combined total of the corporation, its subsidiaries, and the parent company.

^{4) 2023} data from the previous report were revised due to expansion of organizational boundaries (to include major domestic and international subsidiaries with manufacturing operations) and error corrections.

⁵⁾ The reported figure includes reductions from renewable energy consumption.

^{6|} Scope 3 emissions in 2024 were calculated and verified for the **Chemical** and **Qcells Divisions**. The scope 3 emissions for **Insight Division** in 2024 were excluded due to its negligible emission share.

^{7) 2022} and 2023 data were revised due to changes in emission factors.

⁸⁾ Including biogenic CO2 emissions from purchased raw materials, Scope 3 Category 1 emissions amounted to 6,315,987 tons in 2024 and 6,077,946 tons in 2023.

⁹ Scope 3 Category 10 emissions were excluded because reasonable estimation is not possible for B2B intermediate product sales, based on GHG Protocol and WBCSD quidelines for **Chemical Division** and the solar modules were excluded from Category 10 for **Qcells Division**.

^{11) 2023} data from the previous report were revised due to error corrections.

^{12] 2022} and 2023 data from the previous report were revised following the application of the electricity conversion factor [1 MWh = 3.6 GJ].

 $^{13)\ 2022\} and\ 2023\ data\ from\ the\ previous\ report\ were\ revised\ to\ reflect\ the\ efficiency\ of\ self-generation\ facilities.$

¹⁴⁾ The application of the electricity conversion factor (1 MWh = 3.6 GJ) has resulted in discrepancies between total energy consumption and the verified assurance statement.

Environmental

	Cate	gory	Unit	2024	2023	2022
Water						
	Total water	withdrawal		19,637,151	18,388,463	17,910,185
	Dutum	Freshwater		19,637,151	18,388,463	17,910,185
	By type	Others		0	0	0
		Surface water		131,223	0	0
Water withdrawal ¹⁾		Groundwater		359,631	11,875	16,651
······································	By source	Seawater		0	0	0
		Produced water		0	0	0
		Third-party water		19,146,297	18,376,588	17,893,534
	Water without	drawn from water-stressed areas ⁴⁾		15,722,443	14,924,358	14,072,876
	Total water	discharge	ton	11,489,462	9,925,230	9,539,549
	Б.,	Freshwater		2,958,835	2,047,020	1,684,341
	By type	Others		8,530,627	7,878,210	7,855,208
Water discharge		Surface water		307,815	317,610	208,771
(wastewater) ¹⁾		Groundwater		0	0	0
	location	Seawater		2,777,968	2,532,737	2,406,740
		Treated/discharged through third-party organizations		8,403,679	7,074,883	6,924,038
	Water disch	arged from water-stressed areas ⁴		8,948,151	7,778,203	7,475,449
	Total water	consumption		8,147,689	8,463,233	8,370,636
Water consumption 1)	Total volum	ne of reused water		1,572,758	1,435,827	1,480,939
consumption	Water reus	e rate	%	19.3	17.0	17.7
Water pollutants						
	TOC			145	236	189
Water pollutants ^{2], 3]}	BOD		ton	128	165	143
	SS			326	222	146
Air pollutant emiss	ions					
	ODS		tCFC-eq	0	0	0
	NOx			212	205	231
Air pollutants	SOx		ton	9	10	11
	Dust			15	17	18

	Category	Unit	2024	2023	2022	
Environmental certificati	on					
Percentage of ISO 14001-	certified business sites ¹⁾	%	61.5	75.0	75.0	
Number of certified busin	ess site ¹⁾	Number of	8	9	9	
Number of sites subject t	o certification ¹⁾	sites	13	12	12	
Green businesses						
Eco-friendly products ⁵⁾	Sales	KRW 100 million	17,047	22,026	25,111	
	Percentage of sales	%	27.8	30.2	27.1	
Eco-friendly R&D expend	iture ¹⁾	KRW 100 million	1,766	22,026 25, 30.2 2 1,529 1, 2.1 158		
Ratio of R&D expenditure	on eco-friendly technologies to sales revenue	%	2.9	2.1	1.3	
Eco-friendly patents		Number of sites	220	158	130	
Environmental investme	nt					
Green bonds and funds		KRW 100 million	0	0	2,750	
Eco-friendly purchase						
Total purchase ¹⁾		KRW 100	54,186	60,046	67,702	
Eco-friendly products and	service purchase ^{1], 6]}	million	51	89	77	
Eco-friendly products and	I services purchase rate ^{1]}	%	0.1	0.1	0.1	
Environmental training						
Training hours ²⁾		hours	28,552	26,816	24,524	
Employees who participa	ed in environmental education ^{2]}	persons	3,306	5,051	4,715	
Business sites assessed f	or environmental risks	Number of	8	9	9	
Business sites operating w	rith identified environmental risks	sites	13	12	12	

^{*} Scope of environmental performance reporting:

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⁽Water) Domestic sites including the Seoul headquarters, and the Yeosu, Ulsan, Jincheon, Eumseong, Asan, Pungse, Pangyo, and Chuncheon plants (Water pollutants and air pollutants) Domestic sites subject to media-specific environmental permits

^{**} Total figures may differ by ±1 due to rounding.

^{1) 2022} and 2023 data from the previous report were revised due to changes in the data aggregation standard.

^{2) 2022} data from the previous report were revised due to error corrections.

^{3) 2023} data from the previous report were revised due to error corrections.

⁴⁾ Regions classified as High or above in water stress according to the WRI Aqueduct Water Risk Atlas.

^{5) 2022} and 2023 data from the previous report were revised due to a change in the aggregation standard, now based on revenue from eligible activities under the Korean Green Taxonomy.

⁶⁾ Amount spent on products and services with eco-friendly certifications

Environmental

	Catego	ry		Unit	2024	2023	2022
Waste							
	Total waste gener	rated		ton	98,605	101,232	87,803
Waste generation	Waste intensity ¹⁾			tons / KRW 100 million	1.6	1.4	0.9
Waste generation	Designated (haza	rdous) waste	generated		56,915	49,217	34,203
	General (non-haz	ardous) wast	e generated		41,691	52,014	53,600
	Total waste dispo	sed			67,239	59,193	46,723
		Subtotal			44,497	35,427	20,389
		By type	Landfilling	 ton	110	249	20
	Designated (hazardous) waste		Incineration		4,464	5,045	3,989
			Others		39,923	30,132	16,195
		By method	On-site		0	0	327
Waste disposal			Off-site		44,497	35,427	20,062
Waste disposal		Subtotal			22,742	23,766	26,334
			Landfilling		19,322	21,227	23,174
	General	By type	Incineration		2,131	2,538	3,160
	(non-hazardous) waste		Others		1,289	0	(
		D., 4b 4	On-site		0	136	54
		By method	Off-site		22,742	23,630	25,788

* Scope of environmental performance reporting: (Waste) Business sites subject to reporting under the	na: IWast	enortina	enorting: [Waste	el Business site	es subject to	reporting u	under the Allbaro system
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	Cate	egory		Unit	2024	2023	2022
Waste							
Designs (hazard waste waste recycling	Total waste recyc	led		ton	31,366	42,039	41,079
	Total waste recyc	ling rate		%	31.8	41.5	46.8
		Subtotal			12,417	13,790	13,814
			Pre-treatment for reuse		0	0	0
	Designated	By type	Recycling		12,417	13,790	13,814
			Other recovery		0	0	0
			On-site		0	79	0
		By method	Off-site		12,417	13,712	13,814
		Subtotal		ton	18,949	28,248	27,266
		By type	Pre-treatment for reuse		0	0	0
	General (non-hazardous)		Recycling		18,949	28,248	27,266
	waste		Other recovery		0	0	0
		Б	On-site		0	0	0
		By method	Off-site		18,949	28,248	27,266
Violation of enviro	nmental laws and r	egulations					
Number of violation	ons of environment-	related laws	and regulations	Cases	3	2	N/A
Environmental fin	es and penalties			KRW 10 thousand	800	368	N/A

	Categ	ory	Unit	2024				2023				2022			
Business site				Yeosu	Ulsan	Others	Total	Yeosu	Ulsan	Others	Total	Yeosu	Ulsan	Others	Total
		Surface water		0	0	131,223	131,223	0	0	0	0	0	0	0	0
		Groundwater		0	0	359,631	359,631	0	0	11,875	11,875	0	0	16,651	16,651
Water withdrawal ²⁾	Dv course	Seawater	ton _	0	0	0	0	0	0	0	0	0	0	0	0
Water Withurawat	Produced water	Produced water		0	0	0	0	0	0	0	0	0	0	0	0
		Third-party water		12,760,994	3,357,420	3,027,883	19,146,297	12,507,564	3,351,540	2,517,484	18,376,588	12,156,531	3,734,156	2,002,847	17,893,534
Water	Total water	consumption		5,975,497	1,328,235	843,957	8,147,689	6,422,484	1,264,650	776,099	8,463,233	6,132,555	1,712,033	526,048	8,370,636
consumption ²⁾	Total water	water reused		1,041,318	531,440	0	1,572,758	921,177	514,650	0	1,435,827	986,729	494,210	0	1,480,939

^{*} Total figures may differ by ±1 due to rounding.

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^{**} Total figures may differ by ±1 due to rounding.

1) 2022 data from the previous report were revised due to error corrections.

^{2) 2022} and 2023 data from the previous report were revised due to changes in the data aggregation standard.

Social¹⁾

	Category	Unit	2024	2023	2022
Employment					
Total number of	employees		5,910	6,004	6,773
By gender	Male		5,162	5,250	5,659
by gender	Female		748	754	1,114
	Ages under 30		1,194	1,653	1,802
By age group	Ages 30 to 49		3,737	3,344	3,767
	Ages 50 and above		979	1,007	1,204
	Male executives ³⁾		132	101	117
	Female executives		5	5	5
	Male managers ²⁾		1,274	1,115	1,558
	Female managers ²⁾		209	199	235
By job level	Male non-managers ²⁾		3,063	3,310	3,984
	Female non-managers ²⁾		302	369	874
	Middle managers ²⁾		557	550	N/A
	Staff ²⁾	persons	368	355	N/A
	Non-managers ²⁾		3,365	3,679	N/A
	Management ³⁾		137	108	103
	General		1,907	1,632	2,282
D	R&D		554	566	454
By occupation	Office		179	183	172
	Professional		3,016	3,325	3,555
	Contract ³⁾		117	190	207
D	Domestic		5,874	5,987	6,773
By region	Overseas		36	20	132
	Subtotal		9	10	10
Registered executives	Male ⁴		8	9	9
executives	Female ^{4]}		1	1	1

	Category	Unit	2024	2023	2022
Employment					
	Full-time employees	persons	5,763	5,791	6,579
Full times amendances	Percentage of full-time employees	%	97.5	96.5	97.1
Full-time employees	Male full-time employees		5,060	5,078	N/A
	Female full-time employees	persons	703	713	N/A
	Temporary employees		147	213	194
_	Percentage of contract employees	%	2.5	3.5	2.9
Temporary employees	Male temporary employees		102	170	N/A
	Female temporary employees		45	43	N/A
N	Male	- persons -	933	1,292	1,708
Non-affiliated workers	Female		187	196	650
Years of service					
Average years of service	years	10.1	9.8	10	
Recruitment					
Total number of new hi	res		369	666	1,132
By gender	Male		307	540	931
by gender	Female		62	126	201
	Ages under 30		123	367	633
By age group	Ages 30 to 49	persons	219	261	459
	Ages 50 and above		27	38	40
	Full-time employees (new hires)		39	205	452
By employment type	Full-time employees (experiences)		227	244	460
	Temporary employees		103	217	220
Employment diversity					
Female	Number of female employees		748	754	1,114
Female talents ^{2]}	Number of female managers (manager level and above)	persons	214	204	240
	Percentage of female managers	%	13.2	14.4	12.5
	Employees with disabilities		82	54	117
Minorities	National veterans	persons	98	113	144
	Foreigners		19	10	29

¹⁾ The 2022 data includes the Chemical, Qcells, Insight, Advanced Materials, and Galleria Divisions [Advanced Materials and Galleria were spun off between late 2022 and early 2023].

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²⁾ The 2023 data has been revised due to changes in indicator definitions.

^{3) 2023} data from the previous report were revised due to error corrections.

^{4) 2022} data from the previous report were revised due to error corrections.

Social

	Category	Unit	2024	2023	2022
Turnover and retirem	ent				
Total turnover			465	632	601
Dunandan	Male		391	559	469
By gender	Female		74	73	132
	Under 30	persons	134	245	184
Py aga graup	30s		165	214	213
By age group	40s		58	83	101
	50 or older		108	90	91
Voluntary turnover ra	te ^{1), 2)}	%	1.7	0.9	1.3
Voluntary turnover	Subtotal	persons	404	221	355
Labor relations					
	Employees eligible for membership		1,196	1,166	2,064
Labor union	Union members	— persons -	1,196	1,166	1,521
	Union membership rate	%	100	100	73.1
Labor-management council	Number of agenda items	Number of items	528	533	571
Employee benefits					
Employee benefit	Total benefit costs	— KRW million	101,563	107,730	110,494
expenses	Benefit cost per person	— KRW Million	17	18	10
Childcare leave					
Employees who took childcare leave	Male ³⁾	persons	182	138	150
Parental leave					
Employees who used	Male ¹⁾		31	25	13
parental leave	Female ^{1], 2]}		37	37	51
Employees who	Male		25	11	1
plan to return from parental leave	Female	persons	42	29	75
Employees who returned from	Male		25	11	1
parental leave	Female		42	27	7.
Return rate from	Male	0/	100	100	100
parental leave	Female	%	100	93.1	98.7

	Category	Unit	2024	2023	2022
Occupational Safe	ty and Health Management System				
Percentage of busi	ness sites certified for y and health ²⁾	%	55.6	70.0	95.0
Certified business	sites	Number of	5	7	19
Business sites sub	ject to certification ²⁾	sites	9	10	20
Occupational Safe	ty and Health investments				
	Total		91,437	116,500	136,533
	Repair costs		68,282	84,713	102,992
	Inspections, diagnostics, and consulting		4,354	7,099	10,869
Occupational	Training and education	KRW	284	268	259
Safety and Health investment cost	Safety and protective equipment	million	1,413	1,932	1,729
	Workplace environment and health checkups		2,035	2,202	2,107
	Rewards and campaigns		674	1,516	907
	Others		14,395	18,770	17,669
Scope of the Occup	pational Safety and Health management system	l			
	Number of workers		6,733	7,311	N/A
Scope of the Occupational	Number of employees (Hanwha Solutions)	persons	5,324	5,707	N/A
Safety and Health management system	Proportion of employees (Hanwha Solutions)	%	79.1	78.1	N/A
•	Number of employees of suppliers	persons	1,409	1,604	N/A

* Total figures may differ by ±1 due to rounding.

1) 2022 data has been revised in the previous report due to changes in the data calculation method.

2) 2023 data has been revised in the previous report due to changes in the data calculation method.

3) The number of employees who took "Dad Leave", which is paternity leave beyond statutory requirements was newly disclosed in 2024; the 2022 data includes the combined figures for the Chemical, Qcells, and Insight Divisions.

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Category Category						
Total number of business sites Number of sites Number of sites		Category	Unit	2024	2023	2022
Number of sites with work-related accidents cases Percentage of sites Percentage	Occupational accidents					
Number of sites with work-related work-related work-related decidents cases Percentage of sites % 12.7 19.2 28.0	Total number of business	sites		31	26	25
Number of accidents cases Percentage of sites % 12.9 19.2 28.0 Number of accidents cases Suppliers 29.0 29.0 35.0 Number of suppliers 29.0 29.0 35.0 Number of serious accidents Suppliers 30.0 30.0 30.0 Rate of coccupational accidents Suppliers 30.0 30.0 30.0 Rate of employees Hanusha Solutions Suppliers 30.0 30.0 30.0 30.0 Rate of serious accidents Suppliers 30.0 30.0 30.0 30.0 Rate of serious accidents Suppliers 30.0 30.0 30.0 30.0 Rate of serious accidents Suppliers 30.0 30.0 30.0 30.0 30.0 Rate of serious accidents Suppliers 30.0 30.0 30.0 30.0 30.0 30.0 Rate of serious accidents Suppliers 30.0		Number of sites	Number of sites	4	5	7
Suppliers Suppliers Cases Suppliers Cases		Percentage of sites	%	12.9	19.2	28.0
Number of serious accidents Employees (Hanuha Solutions) Cases 0		Employees (Hanwha Solutions)		6	9	5
Suppliers Supp	accidents cases ¹⁾	Suppliers		2	9	5
Rate of occupational accidents Employees (Hanumha Solutions) Variable		Employees (Hanwha Solutions)	cases	0	0	0
occupational accidents (Fatalities excluded) Suppliers 0.1 0.6 0.3 Rate of serious accidents (Fatalities excluded) Employees (Hanuha Solutions) % 0 0 0 Number of fatalities excluded) Employees (Hanuha Solutions) persons 0 0 0 Fatality rate per 10,000 persons Employees (Hanuha Solutions) Cases per 10,000 persons 0 0 0 Occupational illness frequency rate (OIFR) Employees (Hanuha Solutions) Cases per 10,000 persons 0 0 0 0 Total working hours Employees (Hanuha Solutions) Cases per 1 million working hours 0.5 11,986,656 12,728,100 N/A N/A Injury frequency rate (IFR) Employees (Hanuha Solutions) Cases per 1 million working hours 0.5 0.7 0.5 Safety training ⁴¹ Employees (Hanuha Solutions) persons 4,999 5,792 5,509 Safety risk assessment Employees (Hanuha Solutions) Number of sites 31 26 16 Business operating sites assessed for safety risks ⁴¹ Number of sites <t< td=""><td></td><td>Suppliers</td><td></td><td>0</td><td>0</td><td>0</td></t<>		Suppliers		0	0	0
Rate of serious accidents Famployees (Hanwha Solutions) Suppliers 0		Employees (Hanwha Solutions) ¹⁾		0.1	0.2	0.1
Rate of serious accidents Fatalities excluded Suppliers Suppliers O	occupational accidents				0.6	
Number of fatalities	Rate of serious accidents	Employees (Hanwha Solutions)	%	0	0	0
Number of fatalities	(Fatalities excluded)	Suppliers		0	0	0
Suppliers Fatality rate per 10,000 persons Cases per 10,000 persons Ca	Number of fatalities	Employees (Hanwha Solutions)	norconc	0	0	0
Cases per 0	Number of fatalities	Suppliers	persons	0	0	0
Suppliers Supp	Fatality rate per 10,000 p	persons		0	0	0
Total working hours		Employees (Hanwha Solutions)		0	0	0
Suppliers Supp		Suppliers	9	0	0	0
Suppliers Suppliers Suppliers Suppliers Suppliers Employees (Hanwha Solutions) Cases per 0.5 0.7 0.5	Total working hours	Employees (Hanwha Solutions)	hours	11,986,656	12,728,100	N/A
Table Tabl		- ' '	110013	5,181,867	4,364,321	
Table (IFR) Suppliers ^{2l} Imittion working hours 0.4 2.1 0.8 Safety training ^{4l} Employees (Hanwha Solutions) Suppliers persons 4,999 5,792 5,509 Safety risk assessment Business operating sites assessed for safety risks ^{4l} Number of sites 31 26 16 Business operating sites related to safety risks ^{4l} Number of sites 31 26 16 Occupational illnesses Business sites with work-related illness cases Number of sites 0 0 0 Number of occupational Employees 0 0 0	Injury frequency	Employees (Hanwha Solutions) ³		0.5	0.7	0.5
Safety training Suppliers persons 3,737 3,573 1,812 Safety risk assessment Business operating sites assessed for safety risks Suppliers Number of sites 31 26 16 Business operating sites related to safety risks Suppliers 31 26 16 Occupational illnesses Business sites with Number of sites Number of sites 0 0 0 0 Number of occupational Employees 0 0 0 0 0		Suppliers ²⁾	9	0.4	2.1	0.8
Suppliers 3,737 3,573 1,812	Safoty training ⁴⁾	Employees (Hanwha Solutions)	norconc	4,999	5,792	5,509
Business operating sites assessed for safety risks ⁴¹ Business operating sites related to safety risks ⁴¹ Number of sites Occupational illnesses Business sites with Number of sites Number of sites Percentage of sites Number of occupational Employees Number of occupational Employees Number of occupational Employees	Safety training	Suppliers	persons	3,737	3,573	1,812
Business operating sites related to safety risks ⁴¹ Occupational illnesses Business sites with Number of sites Number of sites Occupational illness cases Percentage of sites Number of occupational Employees Number of occupational Employees Number of occupational Employees Number of sites O O O O	Safety risk assessment					
Susiness operating sites related to safety risks 31 26 16	Business operating sites	assessed for safety risks ⁴⁾	Number of sites	31	26	16
Business sites with work-related illness cases Number of sites 0 0 0 Number of occupational library Employees 0 0 0	Business operating sites	related to safety risks ⁴⁾	realiber of sites	31	26	16
work-related illness cases Percentage of sites Number of occupational Employees Number of occupational Cases	Occupational illnesses					
Work-related illness cases Percentage of sites 0 0 0 Number of occupational Employees 0 0 0	Business sites with	Number of sites	Number of sites	0	0	0
Number of occupational Supervision Cases	work-related illness cases	Percentage of sites	- Mailinei oi SileS	0	0	0
	Number of occupational	Employees	C3505	0	0	0
	illness cases	Suppliers	Cases	0	0	0

	Category		Unit	2024	2023	2022
Employee training a	nd career develo	pment				
Average training	Training hours per employee ²⁾		Hours per person	11.3	14.1	16
hours per person	Total employee	training hours		66,902	84,817	111,28
		Total training hours	hours -	56,700	75,570	94,38
By gender	Male	Average training hours per person ^{2],3]}	Hours per person	11.0	14.4	16.
by gender		Total training hours	hours	10,202	9,246	16,90
	Female	Average training hours per person ³⁾	Hours per person	13.6	12.3	15.
	Permanent	Total training hours	hours	60,619	50,564	105,41
By employment type	employees	Average training hours per person	Hours per person	10.5	8.7	16.
ву етпроутнент туре	Contract	Total training hours	hours	6,282	34,253	5,87
	employees	Average training hours per person	Hours per person	42.7	160.8	30.
Performance evalua	tion					
	Subtotal			5,147	4,167	4,66
Number of		Male		4,586	3,491	N/
employees subject to performance	By gender	Female		561	676	N/
evaluation	By job level	Manager		859	325	N/
	by Job tevet	Staff	persons	4,288	3,842	N/
	Subtotal		persons	5,147	4,167	4,66
Employees who	By gender	Male		4,586	3,491	N/
received regular performance	by gender	Female		561	676	N/
evaluations	By job level	Manager		859	325	N/
	ъу Jon revet	Staff		4,288	3,842	N/
Percentage of emplo performance evaluat		d regular	%	100	100	10

* Total figures may differ by ±1 due to rounding.

1) The 2022 and 2023 data has been restated in the previous report due to errors.

2) 2022 data has been restated in the previous report due to changes in the data calculation method.

3) 2023 data has been restated in the previous report due to changes in the data calculation method.

4) For the 2024 disclosure, the 2022 data were reported as the combined total of the Chemical, Qcells, and Insight Divisions.

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	Category	Unit	2024	2023	2022
Equal Opportunity	1				
Ratio of female to	male salary ¹⁾	%	68.5	67.7	54.9
Average salary	male	KRW	92	99	82
per person	female	million	63	67	45
Customer satisfac	ction				
Customer	Number of customer complaints received	cases	1,823	527	785
Customer VOC status	Number of customer complaints resolved	Cases	1,806	525	785
	Customer complaint resolution rate	%	99.1	99.6	100
Customer data pr	ivacy				
	Number of personal information leakages		0	0	0
Number of customer data	Number of data subject complaints (based on confirmed customer data privacy violations or data loss)	cases	0	0	0
privacy breaches	Total monetary losses due to information security breaches or cybersecurity incidents, including fines or penalties paid	KRW million	0	0	0
Social contributio	n				
	Total donation amount		11,977	9,806	7,073
	Investment in social welfare		8,532	3,874	1,466
Amount donated	Investment in education and scholarships	KRW million	2,697	3,200	3,162
	Investment in environment and culture		334	2,617	1,330
	Others		414	116	1,114
Win-win partners	hip				
	Total number of suppliers ^{1]}	Number of	3,768	3,448	5,665
Supplier status	Number of newly registered suppliers ¹⁾	companies	629	555	1,036
	Total purchase amount from suppliers		5,418,591	4,075,894	6,932,605
Supplier Financial	Total budget ^{3]}	KRW million	44,000	51,000	71,000
support assistance	Amount executed		23,559	19,928	23,500
Supplier	Number of grievances received		19	20	N/A
grievance	Number of grievances resolved	cases	12	20	N/A
handling ²⁾	Grievance resolution rate	%	63.2	100	N/A

		Category	Unit	2024	2023	2022
Supply chai	in ESG management					
	Number of new suppli	Number of companies	30	71	N/	
Selection	Percentage of new sup	ppliers screened for environmental standards ³	%	4.8	12.8	N/
of new suppliers	Number of new suppli	iers screened for social standards	Number of companies	30	71	N,
	Percentage of new su	uppliers screened for social standards ^{3]}	%	4.8	12.8	N,
	Number of suppliers a	assessed for environmental impact		16	13	N,
		Subtotal	Number of	0	3	N,
	Number of suppliers identified as having significant negative environmental impacts	Number of suppliers that developed improvement plans based on assessment result	companies	0	3	N,
		Percentage of suppliers that developed improvement plans based on assessment results	%	0	100	N,
		Number of suppliers whose contracts were terminated based on assessment results	Number of companies	0	0	N,
Supplier		Percentage of suppliers whose contracts were terminated based on assessment results	%	0	0	N,
evaluation	Number of suppliers		158	150	N,	
		Subtotal	Number of	12	11	N,
	Number of suppliers	Number of suppliers that developed improvement plans based on assessment result	companies	12	11	N,
	identified as having significant negative	Percentage of suppliers that developed improvement plans based on assessment results	%	100	100	N,
	social impacts	Number of suppliers whose contracts were terminated based on assessment results	Number of companies	0	0	N,
		Percentage of suppliers whose contracts were terminated based on assessment results	%	0	0	N,

* Total figures may differ by ±1 due to rounding.

1) The 2022 and 2023 data has been restated in the previous report due to changes in the data calculation method.

2) Of the 19 grievance cases received in total, 7 are currently being processed.

3) The 2023 data has been restated in the previous report due to errors.

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Governance¹⁾

	Cate	egory	Unit	2024	2023	2022
Board of Direc	tors and Committee					
	Total			9	10	10
	Executive director		persons	3	3	
	Outside director	Number of outside directors		5	6	6
	(non-executive)	Percentage of outside directors	%	56	60	60
	Non-executive dire	ctor	norcono	1	1	N/A
	Female director	Number of female directors	persons	1	1	1
	Terriate director	Percentage of female directors	%	11	10	10
Status of	Foreign director	Number of foreign directors	persons	1	2	2
the Board of	Foreign director	Percentage of foreign directors		11	20	20
Directors		Executive director	%	98	95	98
	Attendance rate	Outside director(non-executive)	70	97	95	95
		Non-executive director		100	88	N/A
	Number of board m	sessions	15	14	14	
	Average tenure of directors		months	32	40	35
	Agenda item	Number of agenda items		118	111	119
		Number of agenda items opposed by outside directors	items	0	0	(
	Audit Committee	Percentage of outside directors	%	100	100	100
		Number of meetings held	sessions	7	8	ć
		Attendance rate ²⁾		100	100	100
		Percentage of female directors	%	33	0	(
	Related-party	Percentage of outside directors ²⁾		100	100	100
		Number of meetings held ²	sessions	11	11	10
	Transactions Committee	Attendance rate ^{2), 3)}		100	95.6	97.5
		Percentage of female directors ²⁾	%	25	0	(
		Percentage of outside directors		100	100	100
Status	Outside Director	Number of meetings held	sessions	1	1	1
of Board Committees	Nomination Committee	Attendance rate ²⁾		100	100	100
Committees		Percentage of female directors	%	25	0	(
		Percentage of outside directors		100	100	100
		Number of meetings held	sessions	6	6	ć
	ESG Committee	Attendance rate ²⁾		100	100	100
		Percentage of female directors	%	25	0	(
		Percentage of outside directors	%	100	100	N/A
	Compensation	Number of meetings held	sessions	4	0	N/A
	Committee ⁴	Attendance rate		100	N/A	N/A
		Percentage of female directors	%	25	n	N/A

	Catego	ry	Unit	2024	2023	2022
	Highest remuneration	Highest remuneration amount ⁵⁾		7,680	3,601	3,600
Remuneration	Employees (excluding the highest-paid individual) Average annual salary per employee		KRW million	86	95	86
Ethics and comp	liance					
	Number of business sites as	ssessed for anti-corruption risks	Number	31	11	15
Anti-corruption risk assessment	Total number of business	sites	of sites	31	11	21
	Percentage of business si	ites assessed for anti-corruption risks	%	100	100	71
Anti-corruption	communication and trainir	ng				
	Total hours of ethics train	ing	hours	882	1,280	3,060
Anti-corruption	Number of participants			147	764	2,344
(ethics) training	Number of executives wh	o completed ethics training	persons	29	28	14
	Number of employees wh	o completed ethics training		118	736	2,330
Anti-corruption	Number of ethics code violations			18	9	5
policy .	Disciplinary actions again	cases	39	2	5	
(code of ethics)	Termination of contracts		0	0	0	
Anti-corruption	Number of participants w	persons	N/A	88	738	
and ethics violations	Number of training	Employees	sessions -	3	1	2
disciplines	sessions conducted	Suppliers		0	0	0
Fair trade	Number of legal consulta	tions on fair trade ⁷⁾		4	N/A	N/A
Internal	Total number of reports r	eceived	cases	0	3	0
compliance reporting status	Number of cases resolved	d		0	3	0
Anti-competitive	practices					
Legal actions rel	ated to anti-competitive pr	ractices	cases	0	0	0
Legal and comp	etition law violations					
	Subtotal			5	4	4
Compliance violations	Number of monetary penalties		cases	5	4	4
	Number of non-monetary	penalties		0	0	0
Total amount of fines imposed	Cases occurred during th	e current reporting period	KRW million	8.9	4.6	2,519

^{1]} The 2022 data represents the combined total of the Chemical, Qcells, Insight, Advanced Materials, and Galleria Divisions

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[[]Advanced Materials and Galleria were spun off between late 2022 and early 2023].

^{2) 2022} data has been restated in the previous report due to errors.

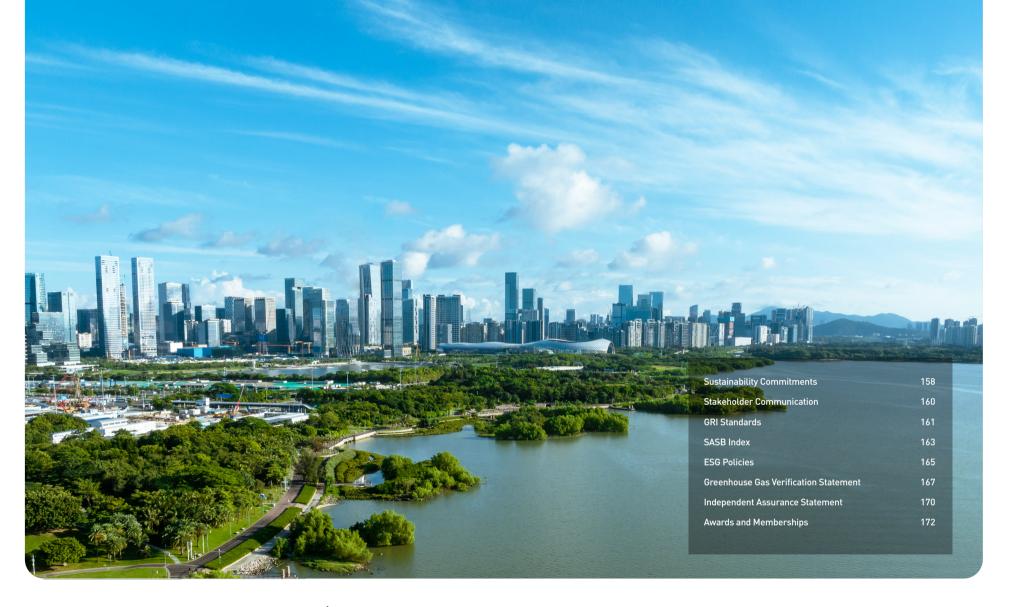
^{3) 2023} data has been restated in the previous report due to errors.

⁴⁾ Newly established on December 20, 2023.

⁵⁾ The highest-paid individual in 2024 includes severance pay of KRW 5,837 million; excluding this individual, the highest remuneration amounted to KRW 4,201 million.

⁶⁾ The number of training participants in 2024 is not available due to group-level training implementation.

⁷⁾ Legal management system introduced in 2024.



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UN SDGs Commitment

Hanwha Solutions promotes ESG management activities based on the detailed goals of SDGs and aims to contribute to the achievement of the UN Sustainable Development Goals (SDGs).

UN SDG's	Response objectives		Detailed objectives	Hanwha Solutions' activities
3 GROUPEAITH AND WELL-BEING	Ensuring healthy lives and promoting	3.8	Achieving universal health coverage, including financial risk protection, access to quality essential health-care services, and access to safe, effective, quality and affordable essential medicines and vaccines for all	Setting goals to achieve incident- and injury-free workplaces Strengthening safety leadership and implementing measures to address serious accidents Conducting workplace health management activities and promoting employee wellness programs
_₩•	well-being for all at all ages		Substantially reducing the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination by 2030	Implementing the right to suspend work to ensure worker safety Assessing chemical risk assessments
4 GURATTY EDUCATION	Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all	4.5	Eliminating gender disparities in education and ensuring equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations, by 2030	Operating and supporting the para sports team Providing environmental education for elementary students from vulnerable groups Providing counseling and psychological support for children affected by abuse
7 AFFORMALE AND CLEANERS OF	Ensuring access to affordable, reliable,	7.2	Substantially increasing the share of renewable energy in the global energy mix by 2030	Establishing a total solar value chain in Georgia, U.S. Developing anion exchange membrane water electrolysis technology for green hydrogen commercialization
- ₩-	sustainable and modern energy for all	7.3	Doubling the global rate of improvement in energy efficiency by 2030	Developing and producing perovskite tandem cells in-house to achieve world-leading power conversion efficiency [28.6%] Promoting the development of industrial complexes equipped with renewable energy facilities
8 DECENT WORK AND ECONOMIC STOWN IN	Promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.3	Promoting development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encouraging the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	Enhancing supplier ESG and SH assessment systems and providing consulting support Expanding excellent suppliers through the open-sourcing system Supporting suppliers through the creation of a win-win fund Participating in procurement consultations hosted by the Agricultural and Fishery Cooperation Foundation
2 PESSONSELE DOSSIMPIDA MEDICOUCTER	Ensuring sustainable consumption and production patterns	12.5	Substantially reducing waste generation through prevention, reduction, recycling and reuse by 2030	Diversifying the application of recycled rPE materials Developing and commercializing BOPE-based flexible packaging films
3 CLIMATE ACTION	Taking urgent action to combat	13.2	Integrating climate change measures into national policies, strategies and planning	Reducing greenhouse gas emissions and expanding renewable energy use to achieve 2050 Net Zero
	climate change and its impacts	13.3	Improving education, awareness-raising, and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	Supporting climate change-related initiatives such as TCFD and K-RÉ100
5 UFE ON LAND	Protecting, restoring and promoting sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, and halting and reversing land degradation and biodiversity loss		Ensuring the conservation of mountain ecosystems, including their biodiversity, by 2030, in order to enhance their capacity to provide benefits essential for sustainable development	Setting biodiversity targets through 2028 Conducting endangered species protection activities Conserving ecosystems through an MOU with the Korea National Park Service Conducting environmental impact assessments and community cleanup activities at workplaces
16 PEACE JUSTICE AND STRONG INSTITUTIONS	Promoting peaceful and inclusive societies for sustainable development, providing access to	16.5	Substantially reducing corruption and bribery in all their forms	Managing company-wide risks Acquiring ISO 37301 (compliance management system) and ISO 37001 (anti-bribery management system) certifications across all business divisions
<u>Y</u>	justice for all, and building effective, accountable and inclusive institutions at all levels			Operating a fair trade compliance program Operating a report system that ensures anonymity and independence

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UNGC Commitment

Hanwha Solutions supports the 10 principles of the UN Global Compact (UNGC) on human rights, labor, environment, and anti-corruption. These principles are integrated into all aspects of our corporate activities.

Category	UNGC Ten Principles	Hanwha Solutions' activities		
	Principle 1. Businesses should support and respect the protection of internationally proclaimed human rights; and	Hanwha Solutions adheres to the conventions of the International Labour Organization (ILO) as well as global labor laws and		
	Principle 2. make sure that they are not complicit in human rights abuses.	regulations. We incorporate provisions regarding the respect and protection of human rights into its Code of Ethics and actively conducts human rights education to enhance awareness and promote the advancement of human rights.		
Human rights	Principle 3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;	Hanwha Solutions complies with the Constitution and relevant laws to protect the right of employees that must be respected fundamentally, such as the freedom of association, bargain collectively, and act collectively, and promotes win-win cooperation by holding quarterly labor-management councils.		
	Principle 4, the elimination of all forms of forced and compulsory labour;	Hanwha Solutions excludes all forms of forced labor		
	Principle 5. the effective abolition of child labour; and	Hanwha Solutions prohibits the employment of minors and child labor.		
	Principle 6. the elimination of discrimination in respect of employment and occupation.	Hanwha Solutions guarantees equal opportunities to all applicants, operates a fair recruitment system, and does not discriminate in hiring, placement, promotion, salary, or education based on gender, religion, political opinion, social status, nationality, or race.		
	Principle 7. Businesses should support a precautionary approach to environmental challenges;	To actively respond to the climate crisis, Hanwha Solutions declared 2050 Net Zero in November 2021 and is promoting various environmental impact reduction activities, such as improving VCM reduction facilities, to become a global environmental management company. Hanwha Solutions' business sites have acquired ISO 14001 (environmental management systems) and are maintaining ISO 45001 (health and safety management systems) certification for the sustainable operation of the SHE management system.		
Environment	Principle 8. undertake initiatives to promote greater environmental responsibility; and	Hanwha Solutions has declared our support for the TCFD and disclose information in accordance with TCFD recommendations. By participating in climate change-related initiatives such as K-RE100, we prioritize ESG management activities and minimize environmental impacts for sustainable growth.		
	Principle 9. encourage the development and diffusion of environmentally friendly technologies.	Hanwha Solutions is committed to expanding our support and investment in the development of eco-friendly technologies, including hydrogen and solar power. We aim to contribute to the creation of a sustainable environment by actively seeking and discovering eco-friendly business models.		
Anti-corruption	Principle 10. Businesses should work against corruption in all its forms, including extortion and bribery.	Hanwha Solutions has continuously maintained our certifications by renewing our Compliance Management System (ISO 37301 and undergoing surveillance audits for the Anti-bribery Management System (ISO 37001), thereby upholding transparent and ethica management practices at a global standard.		

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Stakeholder Communication

Hanwha Solutions defines our key stakeholders as customers, shareholders and investors, employees, suppliers, local communities, and governments, who are directly or indirectly affected by our business activities. We operate a variety of communication channels to create shared value and gather input from stakeholders. Through these channels, we actively collect diverse opinions and strive to reflect them in our decision-making processes.

Key stakeholders	Main communication channels	Key areas of interest	Hanwha Solutions' activities
Customers	Official website and social media channels (ongoing) On-site and invited seminars (ongoing) VOC (Voice of Customer) channels (ongoing) Customer satisfaction survey (once a year) Business report and sustainability report	Preventing personal data breaches Enhancing product and service quality Producing sustainable and eco-friendly products	Establishing and operating division-specific privacy policies based on the Personal Information Protection Act Developing products and services that reflect customer needs Advancing the CRM system by building a database for managing customer quality specifications Conducting Life Cycle Assessments (LCA) for the Chemical and Qcells Divisions in 2023 Improving customer satisfaction through surveys and follow-up actions
Shareholders and investors	Annual general meeting of shareholders (once a year) Extraordinary general meeting of shareholder (as needed) NDRs and IR meetings (quarterly) Corporate briefings (quarterly) Business report, audit report, corporate governance report, and sustainability report	Management strategies to enhance corporate value Risk management activities Promoting shareholder-friendly management Prompt and accurate communication	Implementing the Corporate Governance Charter Applying mid- to long-term shareholder return policies Engaging in various communication activities including corporate briefings, NDRs, and conferences Ensuring transparent disclosure through business reports, corporate governance reports, and sustainability reports
Employees	Grievance reporting channel (ongoing) Intranet bulletin board (ongoing) Employee meetings and workshops (ongoing) Organizational culture survey (once a year) Labor-management council (quarterly)	Work-life balance Employee health and safety Talent development and career management Fair performance evaluation and compensation	Conducting employee competency development programs Operating diverse employee welfare programs Promoting a culture of human rights by conducting regular human rights risk assessments Operating a fair and reasonable performance-based compensation system Creating a safe and pleasant working environment Holding quarterly labor-management council meetings
Suppliers	 Grievance reporting channel (ongoing) Meetings with supplier representatives (as needed) Training programs for suppliers (ongoing) 	Building fair partnerships with suppliers Win-win cooperation and ESG support programs Fair trade practices	Establishing a supplier code of conduct Establishing a sustainable supply chain management policy Supporting ESG capacity building for suppliers and advancing safety and health evaluation systems Creating and operating a win-win fund
Local communities	Participation in local councils and committees (ongoing) Social contribution activities (ongoing)	Community development and revitalization Creating value for local communities Environmental conservation activities	Conducting environmental impact assessments based on biodiversity-related risks and opportunities Carrying out social contribution activities for vulnerable groups and local residents Running a "resource recycling campaign" to improve the work environment for employees with disabilities and to support Net Zero Supporting solar power facility projects in parks
Governments	Membership and participation in industry associations (ongoing) Support and cooperation with public institutions and government agencies (ongoing)	Compliance with laws and regulations Participation in industry-related policy development Strengthening public-private partnerships	 Fulfilling tax obligations Creating jobs Implementing collaborative projects with government and public institutions

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	2-2	Entities included in the organization's sustainability reporting	6	
	2-3	Reporting period, frequency, and contact point	2	
	2-4	Restatements of information	-	The restated information is included in the relevant section.
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	2-6	Activities, value chain, and other business relationships	6	
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Indicator		Description	Page	Notes
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	305-2	Energy indirect (Scope 2) GHG emissions	149	
	305-3	Other indirect (Scope 3) GHG emissions	149	
GRI 305: Emissions	305-4	GHG emissions intensity	149	
EMISSIONS	305-5	Reduction of GHG emissions	149	
	305-6	Emissions of ozone-depleting substances (ODS)	150	
	305-7	NOx, SOx, and other significant air emissions	150	
Environment	al impact re	eduction and management		
GRI 3: Material topics 2021	3-3	Management of material topics	13, 14	
	303-1	Interactions with water as a shared resource	150	
GRI 303:	303-2	Management of water discharge-related impacts	150	
Water and	303-3	Water withdrawal	150	
effluents	303-4	Water discharge	150	
	303-5	Water consumption	150	
	306-1	Waste generation and significant waste-related impacts	51	
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wasle	306-4	Waste diverted from disposal	151	
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GRI 3: Material topics 2021	3-3	Management of material topics	13, 14	
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	403-2	Hazard identification, risk assessment, and incident investigation	70, 71	
	403-3	Occupational health services	83	
	403-4	Worker participation, consultation, and communication on occu- pational health and safety	72, 73, 77, 78	
Occupational	403-5	Worker training on occupational health and safety	74, 154	
Health and	403-6	Promotion of worker health	74	
Safety	403-7	Prevention or mitigation of occupational health and safety impacts directly linked by business relationships	79, 80, 83, 84	
	403-8	Workers covered by an occupational health and safety management system	153	
	403-9	Work-related injuries	154	
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Indicator	Description Page		Page	Notes
ESG Managem	ent in the	Supply Chain		
GRI 3: Material topics 2021	3-3	Management of material topics	13, 14	
GRI 308: Supplier	308-1	New suppliers that were screened using environmental criteria	155	
environmental assessment	308-2	Negative environmental impacts in the supply chain and actions taken	94, 95, 155	
GRI 414:	414-1	New suppliers that were screened using social criteria	94, 155	
Supplier social assessment	414-2	Negative social impacts in the supply chain and actions taken	91, 92, 93, 94, 95, 155	
Transparent a	nd Ethical	l Governance		
GRI 3: Material topics 2021	3-3	Management of material topics	13, 14	
Compliance ar	nd Ethics I	Management		
GRI 3: Material topics 2021	3-3	Management of material topics	13, 14	
	205-1	Operations assessed for risks related to corruption	109, 156	
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Employment	401-3	Parental leave	153	
GRI 404: Training and education	404-1	Average hours of training per year per employee	154	
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Sector: Chemicals

Table 1. Sustainability Disclosure Topics & Accounting Metrics			Hanwha Sol	∪tio∩s' Response ¹⁾	
Topic	Code	Accounting metric ⁵⁾	2023	2024	
	RT-CH-110a.1 ²	Gross global Scope 1 emissions	486,793 tCO2eq	502,888 tCO2eq	
Greenhouse gas	RI-CH-IIUa.I"	Percentage covered under emissions-limiting regulations	76.4 %	77.3 %	
(GHG) emissions	RT-CH-110a.2	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	Page 27, 29, 31, 34, 35	Page 33-37, 39, 40	
		[1] NOx (nitrogen oxides) (excluding N ₂ O (nitrous oxide))	205 ton	212 ton	
A to a constitution	RT-CH-120a.1	[2] SOx (sulfur oxides)	10.1 ton	9.4 ton	
Air quality	RI-CH-IZUa.I	[3] Volatile organic compounds (VOCs)	Not calculated	Not calculated	
		[4] Hazardous air pollutants (HAPs)	Not calculated	Not calculated	
		[1] Total energy consumed	26,533,123 GJ	24,888,381 GJ	
	RT-CH-130a.1 RR-ST-130a.1	[2] Percentage grid electricity ^{6]}	58.3 %	57.2 %	
Energy management ³		[3] Percentage renewable ^{6]}	1.2 %	0.7 %	
		[4] Total self-generated energy ⁶	14,995 GJ	20,717 GJ	
	RT-CH-140a.1 RR-ST-140a.1	[1] Total water withdrawn ⁴	18,388,463 m³	19,637,151 m³	
		[2] Total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress ⁴	14,924,358 m³, 81.2 %	15,722,443 m³, 80.1 %	
Water management	RT-CH-140a.2	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	No violations	No violations	
	RT-CH-140a.3 RR-ST-140a.2	Description of water management risks and discussion of strategies and practices to mitigate those risks	Page 41, 42	Page 31, 44, 46, 49, 50	
Hazardous waste	RT-CH-150a.1	Amount of hazardous waste generated	49,217 ton	56,915 ton	
management	RR-ST-150a.1	Percentage recycled	28.0 %	21.8 %	
Community relations	RT-CH-210a.1	Discussion of engagement processes to manage risks and opportunities associated with community interests	Page 100-102	Page 132-136	
Occupational health and safety for the entire workforce	Occupational health	RT-CH-320a.1	Total recordable incident rate (TRIR) for direct employees and for contract employees	Employees: 0.7 / Suppliers: 1.4	Employees: 0.5 / Suppliers: 0.4
		Fatality rate for direct employees and for contract employees	0 %	0 %	
	RT-CH-320a.2	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	Page 60-67	Page 74-84	
Product design for use-phase efficiency	RT-CH-410a.1	Revenue from products designed for use phase resource efficiency	-	-	

1) For metrics with specified page numbers, please refer to the corresponding content in the Sustainability Report.

2) 2023 data in the previous report were revised due to boundary expansion (including major domestic and international subsidiaries with manufacturing facilities) and data errors.

3) 2023 data were revised following the application of the electricity conversion factor (1 MWh = 3.6 GJ).

4) Data were revised due to changes in data calculation methodology.

5) [RT-CH-110a.1] is a consolidated indicator; all other indicators are on a standalone basis.

6) 2023 data in the previous report were revised to reflect self-generation facility efficiency.

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Sector: Chemicals

		Table 1. Sustainability Disclosure Topics & Accounting Metrics	Hanwha	Solutio∩s' Response ¹⁾
Topic	Code	Accounting metric	2023	2024
	RT-CH-410b.1	[1] Percentage of products that contain Globally Harmonized System of Classification and Labelling of Chemicals [GHS] Category 1 and 2 Health and Environmental Hazardous Substances	-	-
Chemical safety and environmental		(2) Percentage of products that have undergone hazard assessments"	100 %	100 %
responsibility	DT 011 /101 0	(1) Discussion of strategy to Management of chemicals of concern	Page 40	Page 48
	RT-CH-410b.2	(2) Discussion of strategies to develop alternatives with reduced human and/or environmental impact	Page 40	Page 48
Genetically modified organisms (GMOs)	RT-CH-410c.1	Percentage of products by revenue that contain genetically modified organisms (GMOs) Not applicable		Not applicable
Management of legal and regulatory environmental requirements	RT-CH-530a.1	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry		Page 37, 53
		Process Safety Incidents Count (PSIC)	0	0
Process safety, emergency preparedness, and response	RT-CH-540a.1	Process Safety Total Incident Rate (PSTIR)	0	0
		Process Safety Incident Severity Rate (PSISR)	0	0
	RT-CH-540a.2	Number of transport incidents	0	0

Sector: Solar Technology & Project Developers

		Table 1. Sustainability Disclosure Topics & Accounting Metrics	Hanwha Solu	J†io∩s' Response¹¹
Topic	Code	Accounting metric	2023	2024
Hazardous waste management	RR-ST-150a.2	Number and aggregate quantity of reportable spills, quantity recovered	Not applicable	Not applicable
Environmental impact of	RR-ST-160a.1	Number and duration of project delays related to ecological impacts	Not applicable	Not applicable
project development	RR-ST-160a.2	Description of efforts in solar energy system project development to address community and ecological impacts	Page 50, 53	Page 60, 61
Integration of energy infrastructure and management of related regulations	RR-ST-410a.1	Description of risks associated with integration of solar energy into existing energy infrastructure and discussion of efforts to manage those risks	B 00.05	5 04 00
	RR-ST-410a.2	Description of risks and opportunities associated with energy policy and its impact on the integration of solar energy into existing energy infrastructure	— Page 20-25	Page 21-29
Product life cycle management	RR-ST-410b.2	Weight of end-of-life material recovered, percentage recycled	No products have reached their end-of-life (domestic manufacturing plant completed after 2015)	No products have reached their end-of-life (domestic manufacturing plant completed after 2015)
	RR-ST-410b.4	Description of approach and strategies to design products for high value recycling	Page 51	Page 59
	RR-ST-440a.1	Description of the management of risks associated with the use of critical materials	Page 55	Page 63
Raw material sourcing	RR-ST-440a.2	Description of the management of environmental risks associated with the polysilicon supply chain	Page 50, 55	Page 61, 63

1) For metrics with a page reference, please refer to the relevant section in the Sustainability Report.

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Code of Ethics

Hanwha Solutions established a code of ethics to guide actions and value judgments regarding the environment, fair trade, unfair competition, and community participation, along with practice guidelines outlining behavioral standards for Hanwha Solutions and its employees. The Board of Directors approved the suspension of the Code of Ethics on August 11, 2020, under Article 28. Since then, the authority to establish the practice guidelines for the code of ethics was delegated to the ethics management department, and the Compliance Office then formulated the Code of Ethics Practice Guidelines in accordance with Article 26 of the Code of Ethics.

Policies Related to Fair Trade and Unfair Competition

[Code of Ethics]

Chapter 3 Compliance with laws and free market economy

Article 8 (Compliance with laws and commercial customs)

- ① We comply with all applicable laws and regulations in all regions where we operate and conduct business by respecting commercial customs.
- ② We do not engage in any acts that violate domestic and international fair trade laws.
- ③ Employees stationed overseas shall be familiar with the laws and commercial customs of the region and avoid violating them.

Article 9 (Free market economy)

- ① We support market competition in all regions under the principle of free competition.
- ② We practice fair competition with competitors based on mutual respect and do not infringe on their interests or unfairly exploit their weaknesses.
- ③ We do not slander competitors or make groundless comparisons through advertisements.
- 4 We obtain and utilize information in compliance with laws and commercial customs.

[Code of Ethics Practice Guidelines]

VI. Practice guidelines related to fair trade and unfair competition prevention

Basic guidelines and goals

- 1) We recognize and comply with the laws and regulations on fair trade in all contracts, transactions, and other business relationships involving legal or factual stakeholders. This includes prohibitions against abuse of market dominance, unreasonable collaborative acts, unfair trade practices, resale price maintenance, and the provision of undue benefits to related parties. We act in a manner that ensures no violation of fair trade laws.
- 2) We ensure compliance with the Unfair Competition Prevention and Trade Secret Protection Act and related laws (the "Unfair Competition Laws") in all legal and factual relationships, including employee recruitment, research and development, and business negotiations or consultations with third parties, where others' trade secrets, ideas, or intellectual property rights may be involved.
- 3) We aim to achieve zero cases of violations of fair trade laws, such as unfair trade practices involving abuse of a superior bargaining position, and violations of the Unfair Competition Laws, such as infringement of trade secrets or acts of unfair competition, by faithfully implementing the above guidelines and the following action plans.

Community engagement policy

[Code of ethics practice guidelines]

V. Environmental management practice guidelines

Behavioral guidelines

- 4) A. We engage in cleanup activities in collaboration with local communities to protect the environment and actively participate in social contribution programs aimed at restoring natural ecosystems and conserving biodiversity.
 - B. We recognize the importance of ecosystem restoration and biodiversity conservation, assess the potential impacts of our business activities on local biodiversity, and take all possible measures to minimize any negative effects.

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EHS policy

Hanwha Solutions has established our Environment. Health, and Safety (EHS) policy and related regulations in alignment with ISO 45001 (Occupational Health and Safety Management Systems). ISO 14001 (Environmental Management Systems), and relevant domestic and international laws and regulations. The policy was officially approved and announced by the heads of each business division and is being implemented accordingly. It applies to all employees company-wide and is also recommended for compliance by local residents and other stakeholders.

SHE policy of the Chemical Division

Safety, Health, and Environment (SHE) Policy

Goal: Achieve zero accidents and Net Zero.

We place safety, health, and environment as top priorities in corporate management. To build a safe and clean business site, we implement the following:

- 1. Under an advanced SHE management system, we cultivate a robust safety culture where all employees willingly adhere to safety protocols.
- 2. To achieve an accident-free workplace, we eliminate potential risk factors, create safe working environments, and continuously promote the health of our personnel.
- 3. To contribute to Net Zero, we promote a circular economy of resources, optimize energy use across all processes, and persistently reduce pollutants to establish an eco-friendly facility.
- 4. We strengthen our SHE cooperation framework through active engagement and communication with stakeholders, including employees, suppliers, customers, and residents.

EHS policy of the Qcells Division

Environment, Safety, and Health (ESH) Policy

Goal: Achieve zero accidents and Net Zero.

Hanwha Solutions Ocells Division prioritize environmental sustainability, safety, and health as core values in corporate management. We implement the following initiatives to foster an environmentally friendly workplace.

- 1. We strictly adhere to ESH regulations and cultivate a safety culture where employees actively engage.
- 2. We ensure a safe and healthy workplace through accident prevention activities focused on risk assessments and adherence to the 10 Safety Principles.
- 3. To achieve Net Zero, we promote circular economy practices, optimize energy use across all R&D, production, and service operations, and continue efforts to reduce pollutants to establish an eco-friendly workplace.
- 4. We enhance our ESH cooperation framework through active communication and collaboration with stakeholders, including employees and suppliers.

Health and safety policy of the Insight Division

Safety and Health Management Policy and Goal

The Insight Division clarifies the scope of responsibilities of those in charge of safety and health in accordance with relevant laws, and fosters a culture of safety by promoting active communication and participation of employees, partner companies, customers, and local residents. Through these efforts, the division aims to establish a collaborative system for safety and health and raise awareness for industrial accident prevention.

Safety and Health Management Policy

Strengthening a proactive prevention system through the advancement of the safety and health management framework

Safety and Health Management Goal

Zero Serious Accidents for 5 Consecutive Years

Urban Development

Leading a proactive safety culture

· Establish safety inspection expertise to improve implementation effectiveness

· Strengthen compliance with safety inspection execution Enhancing safety capacity of partner companies

Premium Lifestyle

- · Advance the emergency response system and operating
- · Enforce prohibition of high-risk food products

Energy Solution

Strengthening accident prevention activities

Strengthen support for partner companies to ensure effective implementation of the Serious Accident Punishment Act

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Greenhouse Gas Verification Statement(Scope1, 2)

INDEPENDENT VERIFICATION OPINION HANWHA SOLUTIONS CORPORATION

Introduction

DNV Business Assurance Korea Ltd. ("DNV") was commissioned by Hanwha Solutions Corporation ("Company") to perform third party verification of the Company's Greenhouse Gas statement for the calendar year 2024. The company is responsible for the preparation of the GHG statement on the basis set out within the quidelines on the operation of GHG emission trading scheme ("ETS") (Notification No. 2024-155 of Ministry of Environment). The Company has full responsibility of the GHG statement.

According to terms of contract, DNV expressly disclaims any liability or responsibility for any decisions, based upon the verification opinion.

Scope of Verification

The GHG emissions data covered by our verification is based on the GHG statement submitted to the competent

- Organizational boundary: Hanwha Solutions (Chemical, Qcells and Insight in Korea)
- Operational boundary: Direct Emissions (Scope 1) and Indirect Emissions (Scope 2)
- Reporting period: 2024.01.01 ~2024.12.31

Verification Approach

The verification has been conducted in accordance with the verification principles and tasks outlined in the guidelines on the operation of GHG-ETS (Notification No. 2024-155 of Ministry of Environment) and the verification guideline for GHG-ETS(Notification No. 2024-169 of Ministry of Environment) based upon a reasonable level of assurance. DNV planned and concluded our work so as to obtain all the information and explanations deemed necessary to provide us with sufficient evidence to provide a verification opinion with 2.5% materiality level. As part of the verification process, we have reviewed as follows;

- Adequacy of GHG data control, collection and emission calculation and report process
- The GHG statement is based on measurements and has inherent limitations that may arise from the process of calculating, estimating, and finalizing the reported data.

Conclusions

Based on the verification conducted, the information related to the GHG statement has been properly calculated

• DNV presents an 'Unmodified' opinion on Greenhouse Gas Emissions

	Greenhouse Gas Emissions (tCO ₂ eq.)			
	Direct emission (Scope 1)	Indirect emissions (Scope 2)	Total emissions	Consumption (TJ)
Emissions for the preceding three based on years 4th commitment period	394,097.631	2,135,018.909	2,529,104	48,751
Emissions for surrender of emissions permits	378,574.297	2,122,056.999	2,500,618	

* In order to report the GHG emissions and Energy consumption as an integer, the value on the opinion might be different from the actual number with $\pm 1 \text{ tCO}_2$ -eg.

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

23 April 2025 Seoul, Korea

Country Representative

DNV Business Assurance Korea Ltd. Lee, Jang Sup

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Greenhouse Gas Assurance Statement





kfq Formation Greenhouse Gas Verification Statement (Scope 3)

Verification Opinion Statement **GHG** Emissions Verification HANWHA SOLUTIONS

Verification Target

Korean Foundation for Quality (hereinafter 'KFQ') has conducted a verification of Scope 3 Greenhouse Gas Emissions (hereinafter 'GHG emissions') of Hanwha Solutions (hereinafter 'Company') for 2024. KFQ is responsible for providing an assurance statement on the GHG emissions based on the verification scope and criteria described below, while the responsibility for the claims made regarding the GHG emissions rests with

1) Address (based on headquarters): Hanwha Building, 86, Cheonggyecheon-ro, Jung-gu, Seoul

2) Verification Scope : Chemical Division and Ocells Division

Verification Purpose

The purpose is to provide an independent verification opinion on the company's Scope3 emissions.

Verification Scope

The verification covered the thirteen emission categories²¹ selected by the company during 2024. 2] Category 1, 2, 3, 4, 5, 6, 7, 9, 11, 12, 13, 14, 15

Verification Criteria

The following criteria and coefficients used by the company were applied.

Criteria

- ISO14064-1:2018
- GHG Protocol Corporate Standard
- WBCSD/WRI, Corporate Value Chain (Scope 3) Accounting and Reporting Standard
- Rule for emission reporting and certification of greenhouse gas emission trading Scheme

Coefficient

- Environmental Product Declaration evaluation coefficient (2021)
- Supplier-provided emission factor
- Ecoinvent database 3.6

Level of Assurance

The verification has been conducted in accordance with the verification principles and standards of the 'ISO14064-3:2019' under the limited verification level

Verification Limitation

GHG emissions verification involves inherent limitations that may arise depending on the organization's data characteristics, calculations and estimates, sampling method, and limited assurance level. Additionally, this verification does not include responsibility for the accuracy of the original data provided by the company.

Conclusion

Based on the criteria and guidelines stated above, KFQ's verification opinion is as follows.

- 1) GHG emissions of the company for 2024 were properly calculated based on the materials provided, and no material errors or omissions that could affect the verification opinion were identified.
- 2) The criteria and process established by the company for calculating GHG emissions were transparently documented in the internal calculation process to prevent potential misunderstandings.
- 3) Accordingly, KFQ provides a verification opinion that is "Unmodified"

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Greenhouse Gas Assurance Statement

May 13th, 2025

Korean Foundation for Quality CEO Ji-Yong Song

Ji Young Song

Greenhouse Gas Verification Statement(Scope3)

Summary of Scope 3 GHG Emission Results

Organization HANWHA SOLUTIONS

Verification Scope Chemical Division and Qcells Division

Emission calculation period

The emission calculation period is from January 1st to December 31st, 2024.

Company Scope 3 Emissions verification Results

		Unit : tCU₂ec
	Category	Total emissions
1	Purchased goods & services	6,321,879
2	Capital goods	24
3	Fuel and Energy-related activities not included in Scope 1+2	305,790
4	Upstream transportation and distribution	78,113
5	Waste generated in operations	15,341
6	Business travel	3,415
7	Employee commuting	6,320
8	Upstream leased assets	N/A
9	Downstream transportation and distribution	147
10	Processing of sold products	N/A
11	Use of sold products 11	0
12	End of life treatment of sold products	3,121
13	Downstream leased assets	72
14	Franchises	0
15	Investments	2,008,929
	Total ²⁾	8,743,151

¹⁾ If the emission calculation methodology or assumptions are revised, the reported emissions may not remain zero.

Unit - tC∩-ea

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Greenhouse Gas Assurance Statement







²⁾ Each category-specific emission and the total emissions are rounded to the nearest whole number, which may result in a discrepancy of less than ±1 tCO2eq compared to the actual values.

Independent Assurance Statement

Dear Stakeholders of HANWHA SOLUTIONS CORPORATION

Assurance Outline

Korea Productivity Center Quality Assurance (hereinafter "KPCQA") was commissioned by **HANWHA SOLUTIONS CORPORATION** (hereinafter "HSC") to conduct an independent assurance on the 2024 ESG
Sustainability Report (hereinafter "the report") and issues an assurance statement. HSC has sole responsibility
for the preparation of the data within the report. KPCQA's responsibility is to provide objective opinions on this
report with the specified criteria and scope of assurance.

Scope

This report describes HSC's sustainability efforts and performance. The scope of assurance was included on activities from January 1, 2024 to December 31, 2024. Activities through 2025 has also been used in some areas. The report was assured focusing on the reporting of sustainable management policies, strategies, goals, businesses, and performance, and conformity of data collection and analysis, and the report creation process.

Criteria

The assurance was carried out in accordance with the following standards:

- AA1000AS v3
- KPCQA ESG Report Assurance Protocol

Levels

The assurance of this report was conducted in line with the requirements of the AA1000AS v3 Type 2(Adherence to the AA1000 four principles, information reliability and quality) at moderate level of assurance. The assurance was applied by professional judgement about materiality.

The report has been produced in accordance with GRI Standards. We confirmed that the report was complied with reporting principles of GRI Standards, Universal Standards, and Topic Standards based on the data and information provided by HSC.

· Universal Standards

Organizational and its reporting practices	2-1 ~ 2-5
Activities and workers	2-6 ~ 2-8
Governance	2-9 ~ 2-21
Strategy, policies and practices	2-22 ~ 2-28
Stakeholder engagement	2-29 ~ 2-30
Material topics	3-1 ~ 3-3

· Topic Standards

Economic Performance	201-1, 201-2
Anti-corruption	205-1, 205-2, 205-3
Materials	301-2, 301-3
Energy	302-1, 302-2, 302-3, 302-4
Water and Effluents	303-1, 303-2, 303-3, 303-4, 303-5
Emissions	305-1, 305-2, 305-3, 305-4, 305-5, 305-6, 305-7
Waste	306-1, 306-2, 306-3, 306-4, 306-5
Environmental Assessment	308-1, 308-2
Employment	401-1, 401-3
Occupational Health and Safety	403-1, 403-2, 403-3, 403-4, 403-5, 403-6, 403-7, 403-8, 403-9, 403-10
Training and Education	404-1
Diversity and Equal Opportunity	405-1, 405-2
Supplier Social Assessment	414-1, 414-2

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Independent Assurance Statement

Methodology

- · Review of Sustainability Performance Data and Management System
- Review of the reporting process and data management framework
- Review of materiality assessment process and Internal Analysis Procedure
- Review of media report on sustainability
- · Interviews with executives and employees involved in material topics and report preparation
- · Review of the overall report

Limitations

This assurance is limited assurance in limited criteria with comparative review of data provided by HSC. It has its own limitations depending on the characteristics and calculation method of the data.

Conclusions

KPCQA conducted assurance on the draft by review of the data, onsite verification and interview with the employees. It was confirmed that all errors identified during the assurance were corrected.

As a result of the assurance of this report, no material errors or improper descriptions have been found and the conclusions are as follows.

• Inclusivity : Participation of stakeholders

HSC operates stakeholder communication channels to gather opinions from various stakeholders to derive material topics and ensure that they are reflected in decision-making.

• Materiality : Selection and reporting of material topics

HSC presented sustainability performance data without any material omissions. Relating to the material issues in the report, nothing had come to our attention that would cause problem in decision-making process.

• Responsiveness : Organizational response to issues

KPCQA checked and reviewed the data related to the internal and external stakeholders of HSC, we confirmed HSC identified the reporting scope and stakeholders' interests and reflected them, we confirmed HSC has management process of material topics through materiality assessment.

• Impact : Monitoring and measurement of business activities

KPCQA reviewed HSC identified and monitored the impact of HSC's business activities on stakeholders, we confirmed the impact associated with material issues have been properly measured.

• Reliability: Reliability and quality of specified sustainability performance information KPCQA conducted reliability verification of sustainability performance information provided by HSC, we found no intentional errors or misstatements in the sustainability performance information through reviewing internal procedures for data measurement and management through interviews with the person in charge

Independence of Assurance

and sampling of data.

KPCQA is a 3rd Party Conformity Assessment Body that conforms to ISO/IEC 17021:2015 and has documented policies, assessment processes, and quality assurance systems with assurance team of ESG experts.

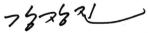
KPCQA was not involved in any of the business operations of the HSC and the assurance was conducted with independence.

May 30, 2025 Korea Productivity Center Quality Assurance

President Jang Jean, Kang







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Awards and Memberships

Major awards (2024 - H1 2025)

Division	Awards	Awarded by
Company-wide	2024 CDP Korea Carbon Management Sector Honors (Raw Materials Sector)	CDP Korea
Company-wide	Excellence Award for Water Security at 2024 CDP Korea	CDP Korea
Chemical	Prime Minister's Commendation at the 2024 Korea Energy Awards (Yeosu Plant)	Korea Energy Agency
Chemical	Plaque of Appreciation from the President of the Korea National Park Service (Ulsan Plant)	Korea National Park Service
Chemical	Recipient of the 105th IR52 Jang Young-Shil Award in 2024 (for semiconductor compound)	Korea Industrial Technology Association
Qcells	Recognized as a 2024 Top Brand PV by EUPD Research, marking 3 consecutive years in the U.S. and 11 in Europe	EUPD Research
Qcells	Ranked No. 1 in U.S. residential PV module market for 7 consecutive years, and commercial for 6	Wood Mackenzie
Qcells	Ranked No. 1 for 5 consecutive years in the solar category of the 2024 Life and Living Awards	DISQ (Deutsches Institut für Service- Qualität) n-tv
Qcells	Named Top Performer for 9 consecutive years in the 2024 PV Module Reliability Scorecard	PVEL
Qcells	Recognized as High Achievement in the 2024 PV Module Index	RETC (Renewable Energy Test Center)

Major association memberships

Construction Guarantee	Construction Association of Korea	Korea Chamber of Commerce and Industry
Korea Housing Construction Association	Korea Developer Association	Bio-based Future Food Industry Committee
Energy Transition Forum Korea	The Federation of Korean Industries	Electric Contractors' Financial Cooperative
Korea Emissions Market Association	Korea International Trade Association	Korea Construction Engineers Association
Korea Industrial Technology Association	Korea Golf Course Business Association, Gangwon Regional Council	Korea Vinyl Environmental Council
Korea Electric Engineers Association	Korea Listed Companies Association	Korea Chemical Industry Association
Korea Plastic Industry Cooperative	Korean Society for Safety	Korea Electrical Contractors Association
International Isocyanate Institute	Korea Chlor Alkali Industry Association	Korea Photovoltaic Industry Association
Korea Fire Facility Association	Korea Smart Grid Association	American Chamber of Commerce in Korea
Fire Industry Guarantee Union	Korea New & Renewable Energy	Korea-U.S. Economic Council

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