



RESPONSIBLE CHEMICAL & ENERGY LEADER

2026 Hanwha TotalEnergies Petrochemical Sustainability Report

ABOUT THIS REPORT

Hanwha TotalEnergies Petrochemical presents its 2026 Sustainability Report to transparently disclose our sustainability performance and initiatives across the environmental, social, and governance (ESG) domains. This third edition aims to deepen stakeholder engagement by detailing concrete outcomes and plans across nine priority areas of sustainability management.

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Reporting Principles

This report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards 2021, the globally recognized framework for sustainability reporting. To ensure performance disclosures accurately reflect our specific sector, the report also incorporates the GRI 11: Oil & Gas Sector Standard alongside the SASB (Sustainability Accounting Standards Board) Chemicals Industry Standard. All financial data presented herein has been prepared in accordance with Korean International Financial Reporting Standards (K-IFRS).

Reporting Boundary

Financial performance disclosures in this report are based on consolidated financial statements, whereas non-financial performance data is based on the domestic operations of **Hanwha TotalEnergies Petrochemical** as a separate legal entity, with certain activities including overseas operations depending on the reporting purpose.

Reporting Period

This report covers performance from January 1 to December 31, 2025. To provide stakeholders with the timeliness and materiality of information, certain performance indicators include data from the first quarter of 2026. Quantitative data spans the past three consecutive years (2023–2025) to facilitate trend and year-over-year analysis.

Reporting Cycle

Hanwha TotalEnergies Petrochemical publishes its sustainability report annually to maintain continuous engagement with stakeholders and integrate their feedback into our management activities. (Our previous report was published in August 2025.)

Report Reliability

Financial data disclosed herein has undergone independent financial auditing. To ensure objectivity and credibility, non-financial performance data have been independently assured by the Korean Standards Association (KSA), an independent third-party assurance provider, in accordance with the AA1000AS v3 standard.

Forward-Looking Statements & Disclaimer

This report may contain forward-looking statements regarding **Hanwha TotalEnergies Petrochemical** 's plans, targets, and projections alongside its current and historical sustainability achievements. Expressions such as "plan," "pursue," "anticipate," and "target" are based on assumptions and judgments made at the time of this report's preparation. Actual results may differ materially due to market conditions, regulatory changes, business operating environments, and other inherent uncertainties. The content of this report is provided solely for informational purposes for our stakeholders and must not be used as a basis for investment decisions or legal decisions.



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CEO Message

Dear Valued Stakeholders,

I would like to extend my deepest gratitude for your unwavering trust and support, which have been the cornerstone of Hanwha TotalEnergies Petrochemical’s journey.

Driven by intensifying external volatility, corporate resilience is now being subjected to unprecedented scrutiny. Anticipating these shifts, Hanwha TotalEnergies Petrochemical has preemptively instituted robust risk-management frameworks, systematically bringing unpredictable variables under its control. Our resilient response system—built upon feedstock diversification and operational excellence—has once again proven our ability to remain steadfast under any circumstances.

First, we have fortified our mid- to long-term roadmaps to address the climate crisis.

Steadfast in our commitment to achieving Net-Zero by 2050, we have re-calibrated our phased milestones through objective evaluations of shifting energy markets and technological readiness. Our implementation strategies have been strictly aligned with the enhanced 2035 Nationally Determined Contributions (NDCs) and evolving global standards, serving as a clear compass for our future. Building on this foundation, we will channel our company-wide capabilities to accelerate the transition to low-carbon fuels and maximize energy efficiency.

Second, we have sharpened our competitive edge in sustainable business while reinforcing market trust.

Over the past year, we scaled up the adoption of sustainable feedstocks and expanded our resource circulation ecosystem. In recognition of these efforts, we achieved the prestigious Gold rating from EcoVadis, a global ESG assessment agency, validating that our sustainability practices meet global standards. Furthermore, we reinforced our governance framework by comprehensively revising our ESG Policy Book and implementing mandatory compliance training across the organization.

Third, we have fostered a corporate culture deeply rooted in mutual respect—one where safety is upheld as an absolute, non-negotiable principle and the foundation for true human welfare.

Through the collective vigilance of our workforce, we successfully maintained our record of zero serious industrial accidents, proving that protecting the lives and well-being of our people comes before all else. Additionally, we reinforced our human rights risk management framework by conducting a human rights impact assessment across our supply chain. Moving forward, we will ensure with unwavering consistency that these efforts become deeply embedded as an enduring part of our everyday culture.

Hanwha TotalEnergies Petrochemical will not rest on past accomplishments.

We will resolutely fulfill our mission as a "Responsible Chemical & Energy Leader," generating a powerful virtuous cycle where economic success and social value coexist. We sincerely ask for your continued support and companionship on this bold journey ahead.

Thank you.

August 2026
CEO and President, Hanwha TotalEnergies Petrochemical
Laurentius Na (Sang Seop Na)

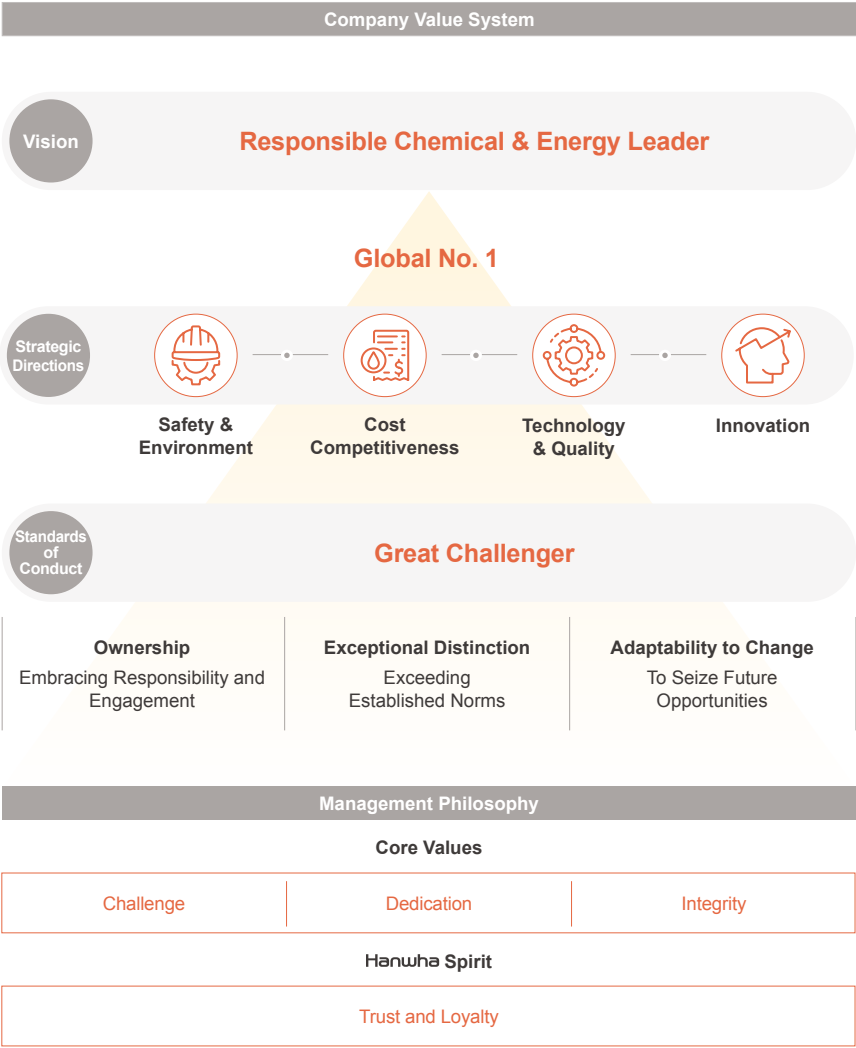
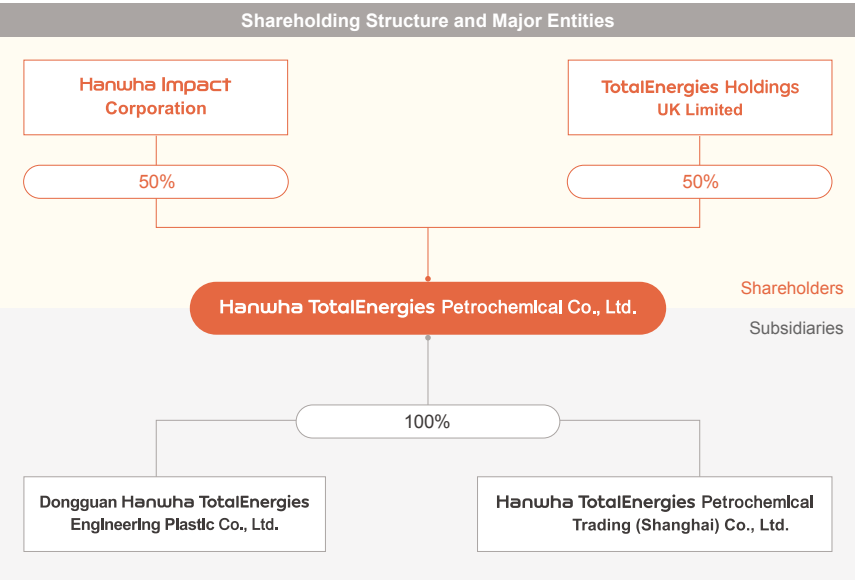
Company Overview

Company Profile

Hanwha TotalEnergies Petrochemical is a comprehensive energy and chemical company that produces base chemicals, energy, and polymers. Since our founding in 1988, we have consistently driven the development of South Korea's petrochemical industry. In 2003, we established a strategic joint venture with **TotalEnergies**—a world-class global multi-energy company based in France—marking a pivotal milestone in our transformation into a global enterprise. Backed by this partnership, we have established ourselves as a global player recognized for industry-leading technology and quality competitiveness in the world market.

Guided by our vision, "Responsible Chemical & Energy Leader," we look beyond commercial growth to position safety, the environment, and social responsibility at the core of our management philosophy. To realize this vision, we prioritize safety and the environment as our highest values, systematically secure cost competitiveness, and deliver differentiated products and services through technical and quality innovation. Furthermore, we actively pioneer future markets through continuous innovation. We deeply value trust with our stakeholders. By fully honoring our responsibilities to people, the environment, and society, we will continue to grow as a company that shapes a sustainable future while creating new value for both our business partners and customers.

Company Overview	
(As of December 2025)	
Company Name	Hanwha TotalEnergies Petrochemical Co., Ltd.
JRD and CEO	Laurentius Na (Sang Seop Na)
JRD and EVP	Dominique Vincent
Date of Establishment	May 1988
Location of Head Office	103, Dokgot 2-ro, Daesan-eup, Seosan-si, Chungcheongnam-do, Republic of Korea
Number of Employees	1,848
Business Areas	Base Chemicals Energy Polymers
Revenue	KRW 10,776,022,494,781



Company Overview

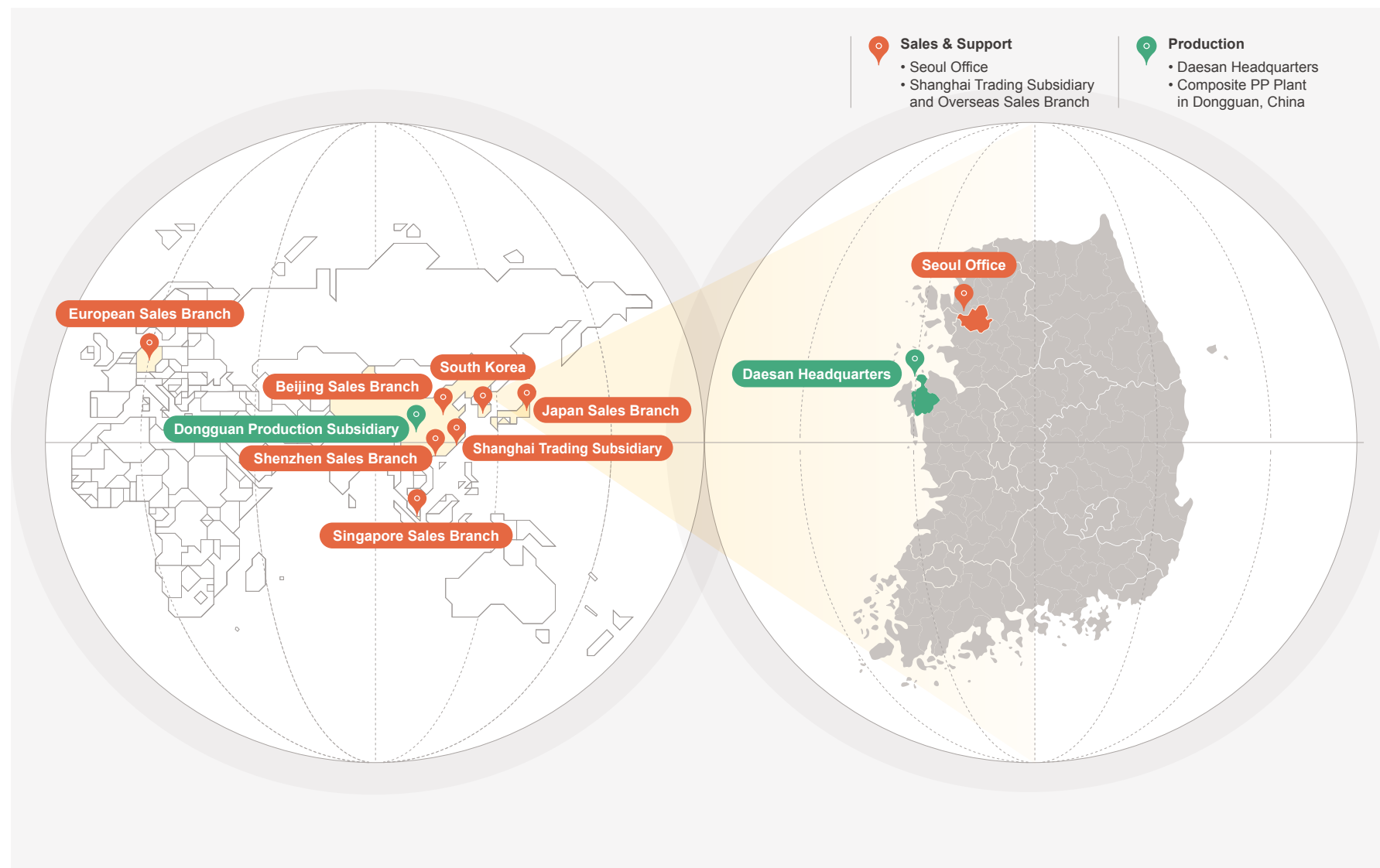
Global Network

Hanwha TotalEnergies Petrochemical operates as a comprehensive energy and chemical company, anchored by its corporate headquarters and primary manufacturing base in Daesan, South Korea, alongside two specialized subsidiaries in China: the Shanghai Trading Subsidiary and the Dongguan Production Subsidiary.

To maximize our global footprint, we deploy an extensive international network dedicated to manufacturing and distributing high-quality products. Our manufacturing facilities are located in South Korea (Daesan) and China (Dongguan), with sales and support offices spanning five countries: South Korea, China, Japan, Singapore, and Europe. The Daesan Headquarters is our primary manufacturing hub and the first production site in the Korean petrochemical industry to simultaneously house a Naphtha Cracking Center (NCC), Condensate Fractionation Unit (CFU), and BTX (Aromatics) production facilities.

Through complete vertical integration—from feedstock procurement to final product manufacturing—we achieve high production efficiency and run a complex production system that spans base chemicals, energy, and polymers.

Supporting our regional strategy, the Dongguan Plant, established in 2009 in southern China, functions as our specialized production hub for compounded resins. This facility ensures a highly agile and resilient supply chain for our regional clients, working in close alignment with our dedicated sales branches in Shanghai, Beijing, Shenzhen, Tokyo, and Singapore to drive international market expansion. Driven by this global network, we position ourselves closer to our customers to deliver the highest value while continuously strengthening our competitiveness in the global market.



Business Overview

Production Flow

Hanwha TotalEnergies Petrochemical operates a vertically integrated production system that organically links its three core business segments, utilizing condensate, naphtha, and LPG as primary feedstocks. Our Base Chemical segment produces essential raw materials such as ethylene, propylene, and styrene monomer. The Energy segment manufactures high-quality refined petroleum products, including jet fuel, diesel, and gasoline.

The Polymers segment offers a broad portfolio of resins, including low-density polyethylene (LDPE), ethylene vinyl acetate (EVA), high-density polyethylene (HDPE), and polypropylene (PP). This integrated production structure serves as our core competitiveness, maximizing feedstock efficiency and ensuring a stable, reliable product supply system for our customers. The feedstock supply chain constitutes a vital component of our primary supply chain.

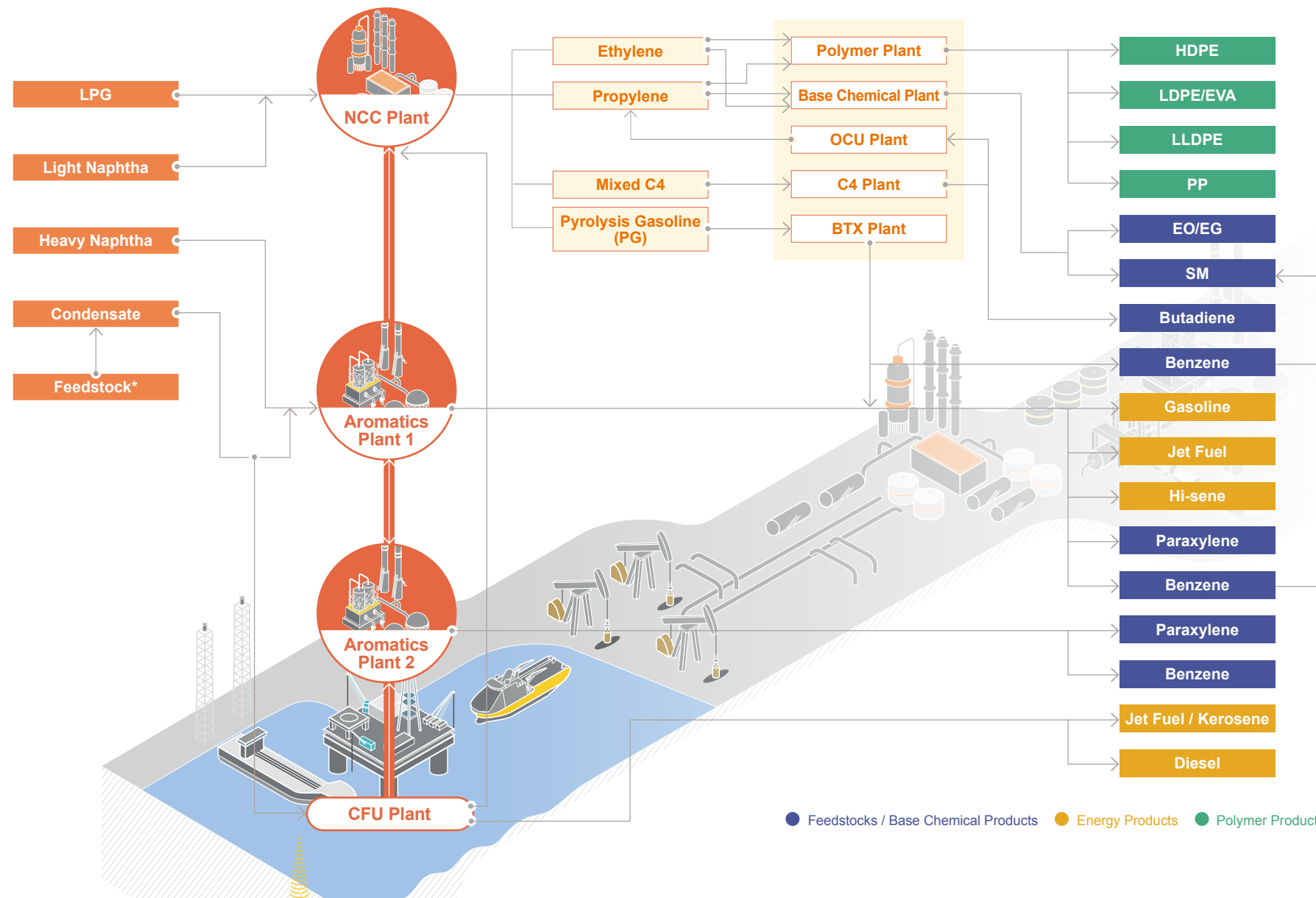
Even in a volatile market environment characterized by geopolitical risks and feedstock price fluctuations, we continue to enhance both our supply stability and cost competitiveness through ongoing feedstock diversification alongside the optimization of production, sales, and logistics.

* Primary Supply Chain Categories

Feedstock Supply Chain:

We procure core feedstocks for chemical processing—including naphtha, condensate, and LPG—alongside catalysts and chemical additives required for high-value-added product synthesis.

This chain operates through long-term contracts and spot purchases, primarily with global oil refiners and chemical manufacturers.



Business Overview

Base Chemical

Base chemicals serve as the essential foundational raw materials for the petrochemical industry, forming the backbone of products used throughout daily life, including textiles, films, PET bottles, and synthetic rubber.

Hanwha TotalEnergies Petrochemical produces and reliably delivers crucial base chemicals—such as ethylene, propylene, paraxylene (PX), and styrene monomer (SM)—to our domestic and international customers. Notably, we possess an annual production capacity of 2.05 million tons for PX and 1.04 million tons for SM, respectively—the largest in Korea—continuously strengthening our competitiveness through economies of scale.

- Chemical raw materials
- Paints
- Adhesives
- Electronic materials
- Pesticide solvents
- Inks

SM
Styrene
Monomer

EO/EG
Ethylene
Oxide/
Ethylene
Glycol

BD
Butadiene

PX
Paraxylene

SM is a liquid product with a distinctive aromatic odor, produced through the reaction of ethylbenzene, which is synthesized from benzene and ethylene. It is primarily used as a raw material for polystyrene (PS) and acrylonitrile butadiene styrene (ABS), which are plastics commonly found in home appliances such as televisions and refrigerators. SM is also used in the production of synthetic rubber (SBR) through polymerization with butadiene.

EO is a colorless gas at room temperature with high reactivity, making it suitable for use as a sterilizing and fumigating agent in medical equipment and packaging containers. It is also used in the production of synthetic detergents and other chemical compounds. Ethylene glycol (EG), produced through the reaction of EO with water, is used as a raw material for antifreeze and polyester.

BD is a gaseous material with a characteristic odor at room temperature. It is extracted from C4 fractions, a by-product of naphtha cracking. BD is primarily used as a raw material in the production of synthetic rubbers such as styrene-butadiene rubber (SBR) and butadiene rubber (BR), which are widely used in tires and other applications.

PX is a clear, transparent liquid produced by the distillation or reforming of xylenes at the aromatics plant. It is used as a feedstock for purified terephthalic acid (PTA), an intermediate material to produce synthetic fibers and PET bottles.

BZ
Benzene

Circular Base
Chemicals

Bio-circular
Base
Chemicals

BZ is a liquid aromatic compound with a distinctive odor, produced at the aromatics plant alongside toluene and xylene. It is used as a raw material in the production of styrene monomer (SM).

Hanwha TotalEnergies Petrochemical manufactures sustainable products using pyrolysis oil derived from plastic film waste that is difficult to recycle mechanically. These products have received ISCC PLUS certification.

* Applicable Products: Circular SM, Circular BD, Circular BZ, and others.

Hanwha TotalEnergies Petrochemical produces sustainable products using renewable plant-based feedstocks such as used cooking oil. These products are certified under ISCC PLUS and can be supplied with a certificate upon customer request.

* Applicable Products: Bio-circular SM, Bio-circular BD, Bio-circular BZ, and others.

Business Overview

Energy

Energy is the foundation that drives modern industry and daily life, making a stable and high-quality energy supply a critical priority for a sustainable society.

Hanwha TotalEnergies Petrochemical addresses this vital need by producing a broad range of high-quality energy products—including gasoline, diesel, jet fuel, by-product fuel oil, LPG, and solvents—leveraging its in-house Condensate Fractionation Unit (CFU) and two aromatics plants. As the first Korean petrochemical enterprise to introduce a CFU, the company capitalizes on this unique technical edge to run an exceptionally efficient production system spanning from initial feedstock procurement to final manufacturing. This integrated operational structure not only ensures a stable domestic supply but also serves as the springboard for strengthening our product portfolio and expanding our global market presence.

By adapting this robust supply architecture to an evolving energy landscape, we are positioned to proactively mitigate market risks while building a safer, more sustainable energy future.

Gasoline
Jet Fuel
Diesel
LPG
Solvent
Hi-sene

Gasoline

Jet Fuel

Diesel

High-quality gasoline is produced and sold using intermediate oil fractions generated from petrochemical processes. Following the completion of the gasoline production facility in 2010, exports of premium gasoline to Japan began, and since 2012, domestic supply has expanded through Korea National Oil Corporation to discount gas stations. This product meets environmental standards while maximizing fuel efficiency and engine output, enhancing driving performance.

Hanwha TotalEnergies Petrochemical has been producing and supplying jet fuel for aircraft turbine engines since 2010. In particular, the product has earned recognition for its exceptional quality, having passed the rigorous quality inspections of BP, the world's largest jet fuel trader.

Hanwha TotalEnergies Petrochemical produces ultra-low sulfur diesel (ULSD, 10 ppm) for vehicles using advanced desulfurization facilities, meeting the world's highest quality standards. The product maximizes fuel efficiency and engine performance while significantly reducing emissions such as nitrogen oxides. It is exported mainly to Australia and Japan. In 2024, a biodiesel blending facility was completed to enable stable domestic supply that complies with Korea's diesel quality standards for vehicles.

LPG

Solvent

Hi-sene

Hanwha TotalEnergies Petrochemical has been importing and supplying LPG since 2010 through its own dedicated storage tanks. The product delivers excellent combustion performance with easy ignition and flame control, and is enhanced with an odorant injection to improve safety in use. LPG is widely used in applications ranging from automotive fuel to propane and butane gas burners.

Hanwha TotalEnergies Petrochemical produces a wide range of hydrocarbon solvent products that meet the specifications of major domestic and international customers. These solvents are used across diverse applications, including paints, adhesives, pesticides, wood coatings, oil extraction, rolling and cutting oils, as well as in the petrochemical and pharmaceutical industries. We have also commercialized high-purity hexane and heptane and low-aromatic (de-aromatized) solvents, which are now available in the market. High-purity hexane and heptane are also used in advanced semiconductor applications, including semiconductor cleaning processes.

By-product fuel oils generated during the production of petrochemical products are registered as By-product Fuel No. 1 (kerosene type) and By-product Fuel No. 2. By-product Fuel No. 1, branded as Hi-sene, is a light fuel product with low-sulfur properties. It can be used without additional dust collection equipment and is suitable for year-round use thanks to its low pour point, which prevents freezing. Hi-sene is compatible with kerosene for boilers and diesel-fired systems without requiring any equipment modifications.

Business Overview

Polymers

Polymers are essential materials frequently described as the "rice of industry," serving as critical raw and intermediate components across vital sectors such as automotive, electronics, packaging, and construction.

Hanwha TotalEnergies Petrochemical drives its core polymer business by utilizing base olefins produced directly at its Naphtha Cracking Center (NCC), which yields an annual capacity of 1.53 million tons of ethylene and 1.10 million tons of propylene.

While continuously expanding our portfolio of general-purpose products like low-density polyethylene (LDPE), high-density polyethylene (HDPE), and polypropylene (PP), we lead the market in high-value-added products—such as LDPE for protective films, EVA for solar panels, HDPE for pipes, and CSPP (Clear and Super impact Polypropylene)—reinforcing our leadership in the high-performance synthetic resin market.

- Bottle caps
- Food containers
- Plastic boxes
- Disposable products
- Film adhesives
- Film products

LDPE Low-Density Polyethylene

Low-density polyethylene (LDPE) is one of the most representative synthetic resin products. With excellent processability, flexibility, and transparency, LDPE is widely used in packaging films, wire and cable coatings, and disposable items. We also manufacture linear low-density polyethylene (LLDPE), which offers similar properties with improved stiffness, making it well suited for high-strength film applications.

EVA Ethylene- Vinyl Acetate Copolymer

EVA is a synthetic resin produced through the copolymerization of ethylene and vinyl acetate. As the vinyl acetate content increases, both the density and flexibility of the material also increase. It is widely used in various applications, from foam-molded products such as sneaker soles to film adhesives. Our EVA for solar panels, one of our flagship products, was recognized for its technological excellence when it was selected as a world-class product in 2015 by the Korean government.

HDPE High-Density Polyethylene

High-density polyethylene (HDPE) is a synthetic resin produced through the polymerization of ethylene and is one of the most widely used plastic materials in everyday life. With excellent impact resistance and cold resistance, it is commonly used in various containers and plastic crates. Its corrosion and crack resistance also make it suitable for infrastructure applications such as above-ground and underground water supply and sewer pipes. **Hanwha TotalEnergies Petrochemical** produces HDPE using a state-of-the-art low-pressure polymerization process, and the products are globally recognized for their superior processability and quality.

PP Polypropylene

Polypropylene (PP) is a thermoplastic resin manufactured by polymerizing propylene. It is the lightest among commodity plastics, while offering high mechanical strength, excellent heat resistance, and relative transparency. Thanks to its ease of molding and processing, PP is widely used in home appliance components such as blenders, irons, and coffee pots, as well as industrial components such as automotive parts.

Circular Polymer

Hanwha TotalEnergies Petrochemical manufactures sustainable products using pyrolysis oil derived from plastic film waste that is difficult to recycle mechanically. These products are certified under ISCC PLUS and can be supplied with a certificate upon customer request.

* Applicable Products:
Circular HDPE, Circular LDPE, Circular LLDPE, Circular EVA, Circular PP

Bio-circular Polymer

Hanwha TotalEnergies Petrochemical produces sustainable products using renewable plant-based feedstocks such as used cooking oil. These products are certified under ISCC PLUS and can be supplied with a certificate upon customer request.

* Applicable Products:
Bio-circular HDPE, Bio-circular LDPE, Bio-circular LLDPE,
Bio-circular EVA, Bio-circular PP



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Sustainability Management Strategy

Strategic Approach to Sustainability Management

Under our vision of becoming a “Responsible Chemical & Energy Leader,” Hanwha TotalEnergies Petrochemical operates a robust sustainability strategy with an aligned direction and implementation system spanning from corporate mission to execution. This framework is built upon three strategic pillars: pursuing eco-friendly management and achieving net-zero emissions by 2050, embedding a safety-first culture and fostering shared growth, and building a sound and transparent corporate culture. To guide the actions and value judgments of all executives and employees across all business activities, we have established a comprehensive ESG Policy Book containing our core principles, guidelines, and policies, which is made publicly available on our corporate website.



Sustainability Management Strategy

Sustainability Management Roadmap

Hanwha TotalEnergies Petrochemical steadily reinforces its sustainability execution capabilities through core initiatives and mid-to-long-term roadmaps tailored to each strategic focus area. By establishing clear roles and responsibilities (R&R) alongside granular targets for each initiative, the company drives execution consistency via systematic performance management and rigorous, periodic reviews. These structured efforts fuel sustainable value creation, securing global-level ESG competitiveness across our entire operational framework.

Key Focus Areas	Strategic Initiative	Mid-Term Target (~2030)	Responsible Organization
Environmental			
Achieving Carbon Reduction	Carbon Reduction roadmap development and implementation (Energy efficiency improvement and transition to low-carbon fuels, etc)	- Scope 1&2: Establish and manage annual roadmaps toward achieving Net-Zero by 2050 - Scope 3: Establish a Scope 3 management framework and set emissions reduction targets	Planning
Expanding the Circular Economy	- Resource conservation - Resource recycling & reuse - Circular product manufacturing	- Expand resource conservation across water, raw materials, and chemicals - Maximize waste recycling and water reuse and recycling rates - Transition the product portfolio toward sustainable, low-carbon solutions supporting customers' Scope 3 emissions reduction	Planning, Polymer BU, Safety & Environment, Technical
Minimizing Environmental Impact	- Regulatory compliance and adherence to international standards - Reduction of environmental pollutants	- Maintain international Environmental Management System (EMS) certifications - Manage air emissions, wastewater discharges, and chemical substance releases	Safety & Environment
Social			
Workplace Health and Safety	- Regulatory compliance and adherence to international standards - Prevention of industrial accidents and protection of occupational health - Strengthening partner collaboration and shared growth - Enhancement of emergency response capabilities	- Maintain top-tier international Occupational Health and Safety Management System certifications - Enhance prevention of serious industrial accidents and risk management; strengthen capabilities for workplace health promotion and occupational disease prevention - Strengthen joint safety management capabilities with business partners - Advance integrated emergency response systems	Safety & Environment
Human Rights and Talent Management	- Respect for human rights and promotion of diversity and inclusion culture - Talent acquisition, promotion of healthy organizational culture and labor-management relations	- Eliminate human rights-related legal violations - Support employee growth, enhance and revitalize workplace communication, and foster sound labor-management relations	HR
Sustainable Supply Chain	Establishment of sustainable supply chain management system	Implement and advance supply chain ESG management systems	Planning, Materials & Purchasing
Strategic Social Contribution	- Building local community partnership - Promotion of environmental sustainability - Local talent development and support for vulnerable groups	- Strengthen mutual growth and cooperation across diverse community demographics, sponsor community-focused public interest projects - Engage in local marine ecosystem conservation activities, drive low-carbon and eco-friendly green campaigns - Cultivate future talent, champion regional youth support programs	HR & Admin.
Governance			
Legal and Ethical Compliance	Advancement of compliance management system	- Establish a proactive compliance risk detection system and achieve operational sophistication - Cultivate a compliance-oriented corporate culture and institutionalize customized compliance training systems tailored by level and job function	Compliance, Management Audit
Proactive Risk Management and Response	Integration of enterprise-wide risk management system	Strengthen proactive enterprise risk management practices	Planning

* Details of each key focus area can be found on the respective pages within this report.

Sustainability Management Strategy

Sustainability Management Highlights | 2025 Key Achievements



Sustainability Management Governance

Sustainability Management Framework

Board Composition

Hanwha TotalEnergies Petrochemical recognizes transparent and robust governance as the core engine of sustainable management, building an operational framework that guarantees the independence and expertise of the Board of Directors. In accordance with relevant laws and the Articles of Incorporation, the Board comprises three inside directors and three non-executive directors. Each member is appointed at the General Meeting of Shareholders following a comprehensive evaluation of their expertise, accountability, and diverse backgrounds.

In consideration of expertise, professional experience, and operational efficiency, JRDs (Joint Representative Directors) concurrently serve as the Co-Chairs of the Board, while our two shareholders—**Hanwha Impact** Corporation and **TotalEnergies** Holdings UK Limited—nominate an equal number of directors to maintain a balanced governance framework.

The Board deliberates and decides on core management strategies and critical business matters while overseeing the activities and performance of management. This supervisory role extends deeply into non-financial agendas; the Board regularly reviews climate change response strategies—such as the carbon reduction roadmap—and monitors the implementation status of greenhouse gas reduction targets to ensure sustainability is fully integrated into executive decision-making.

Complementing this strategic oversight, the company secures an independent check on management through the active participation of its non-executive directors. Potential conflicts of interest are mitigated through strict internal control procedures, such as restricting a director's voting rights on any matters involving transactions with an enterprise where they concurrently serve on the board.

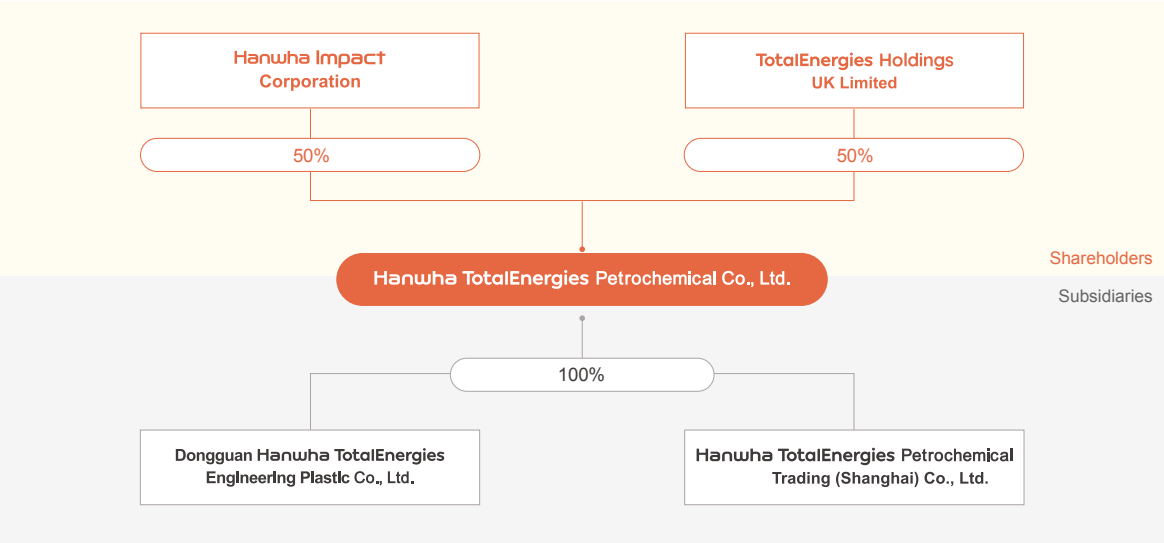
Board Independence

Given the unique nature of our joint venture, we ensure substantive independence for the Board of Directors through a robust framework of mutual checks and cooperation between our two major shareholders.

Under an equal 50:50 ownership structure, our two shareholders (**Hanwha Impact** Corporation and **TotalEnergies** Holdings UK Limited) exercise equal voting power within the Board. This balance institutionalizes an equitable decision-making process, serving as the cornerstone for transparent governance driven by constructive oversight and close corporate cooperation. The board members nominated by each shareholder bridge advanced global management practices with rigorous compliance standards tailored to the energy and chemical sectors. By integrating the distinct market insights and global standards of both shareholders into the boardroom, we ensure that all business matters are evaluated from an objective, multifaceted, and unbiased perspective.

Consequently, all major strategic decisions are reached on a consensus basis, built upon close prior consultations between the shareholders and in-depth deliberations within the Board. This consensus-driven framework guarantees fairness in our governance and serves as a vital safeguard to maintain an independent operational management system, insulated from the undue influence of any single shareholder or executive group.

Shareholding Structure and Major Entities



Sustainability Management Governance

Sustainability Management Framework

Board Diversity and Expertise

Hanwha TotalEnergies Petrochemical strives to strengthen the diversity and expertise of its board directors to drive the company’s continued growth within a rapidly evolving business environment. When appointing board directors, we place the highest priority on specialized knowledge and extensive experience across diverse areas—such as management, finance, accounting, technology, and ESG—while prohibiting any discrimination based on gender, race, nationality, or place of origin. The rich global experience of our multinational board members delivers the strategic insights necessary for us to leap forward as a world-class energy and chemical enterprise. Comprising experts from various cultural backgrounds and nationalities, the Board analyzes risks and opportunities from a multifaceted perspective. To ensure the Board continuously maintains and enhances its capabilities, we plan to implement tailored training and competency development programs covering global business trends, sustainability, and emerging industrial technologies in 2026.

Board Composition

*As of August 2026

Category	Name	Date of Birth	Term	Core Competencies					Career Highlights	Nationality	Gender
				Management · Strategy	Finance · Accounting	Energy · Chemicals	Technology · R&D	ESG · Environment			
Inside Director (Joint Representative Director, JRD)	Laurentius Na (Sang Seop Na)	Oct 1965	Sep 23, 2024 ~ Sep 22, 2027	•		•	•		JRD, Plant Manager, VP of Technology, and VP of Strategic Planning, Hanwha TotalEnergies Petrochemical	Republic of Korea	Male
	Dominique Vincent	Aug 1964	Nov 01, 2025 ~ Sep 22, 2027	•		•			JRD of Hanwha TotalEnergies Petrochemical VP of Special Fluids EU & Worldwide, Refining & Chemicals, TotalEnergies	France	Male
Inside Director	Jaeok Park	Sep 1969	Oct 27, 2025 ~ Sep 22, 2027	•		•			SVP of Planning & Strategy BU, SVP of HR & Admin. BU, VP of PP Production, Hanwha TotalEnergies Petrochemical	Republic of Korea	Male
Non-Executive Director	Kiwon Yang	May 1970	Nov 24, 2025 ~ Sep 22, 2027	•		•			CEO of Hanwha Systems , CEO of Hanwha Impact (Business Division), CEO of Hanwha Corporation (Global Division), CEO of Hanwha Corporation (Momentum Division)	Republic of Korea	Male
	Benoit Decouvelaere	Nov 1974	Jun 25, 2026 ~ Sep 22, 2027	•		•			Director of TotalEnergies Holdings UK Limited, SVP of Refining & Petrochemicals Orient and Growth, Refining & Chemicals, TotalEnergies	France	Male
	Yves Houilliez	Jun 1963	Sep 23, 2024 ~ Sep 22, 2027			•		•	VP of Korea & Manufacturing Middle East and Asia, Refining & Petrochemicals Orient and Growth, Refining & Chemicals, TotalEnergies	France	Male
Auditor	Sungbin Lim	Jul 1977	Sep 23, 2024 ~ Mar 25, 2027	•	•				Director of Hanwha Impact , VP of Corporate Affairs & Finance, Hanwha Impact	Republic of Korea	Male
	Jungwon Shin	Jul 1966	Mar 25, 2024 ~ Mar 25, 2027	•					Country Chair of TotalEnergies Korea	Republic of Korea	Male

Sustainability Management Governance

Sustainability Management Framework

Board Operations

Hanwha TotalEnergies Petrochemical holds board meetings at least once every quarter and convenes extraordinary sessions as needed based on the urgency and importance of the agenda. In accordance with Article 30 of the Articles of Incorporation, resolutions require the approval of at least two-thirds of all incumbent directors. Throughout 2025, the Board convened 11 times, moving beyond routine approvals of financial statements and business plans to regularly review and supervise critical non-financial agendas.

This rigorous oversight is supported by a systematic reporting process for significant enterprise-wide risks, including safety, environment, compliance, and ethics. Dedicated functional departments continuously monitor these focus areas, reporting immediately to executive management upon the occurrence of a critical event and briefing the Board on a regular or ad-hoc basis depending on the severity of the matter.

Number of Meetings	Number of Agenda Items	Approval Rate	Attendance Rate
11	44 ^{total} (15 reports, 29 resolutions)	93%	100%

* Non-executive directors did not participate in voting on agendas related to companies where they concurrently serve as directors.

Major Board Meeting Agendas

 Finance & Management Approve financial statements and business plans, etc.	 ESG & Climate Strategy Approve climate response strategies, including the carbon reduction roadmap and PPAs, and GHG reduction investments (above a certain threshold) (at least once a year)	 Compliance Report annual compliance activities (at least once a year)
 Safety & Environment Report safety management indicators, safety incidents (upon occurrence), and GHG emission performance (quarterly)	 Business Risk Report enterprise-wide business risk assessment results (at least once a year)	

BOD Committee

To foster operational efficiency across the Board and institutionalize objectivity and transparency in executive compensation decisions, **Hanwha TotalEnergies Petrochemical** operates the Compensation Committee under Article 29(2) of our Articles of Incorporation, vesting it with specialized authority. Established in 2006, the Committee comprises four registered directors—two inside directors and two non-executive directors. It is tasked with the deliberation and oversight of director remuneration caps, material amendments to employee compensation structures, and other critical wage-related policies. The Committee's operational track record is transparently disclosed in annual business reports. Furthermore, we insulate the Committee's independence to guarantee that it executes its assigned responsibilities in a highly accountable and transparent manner.

Remuneration for Registered Directors

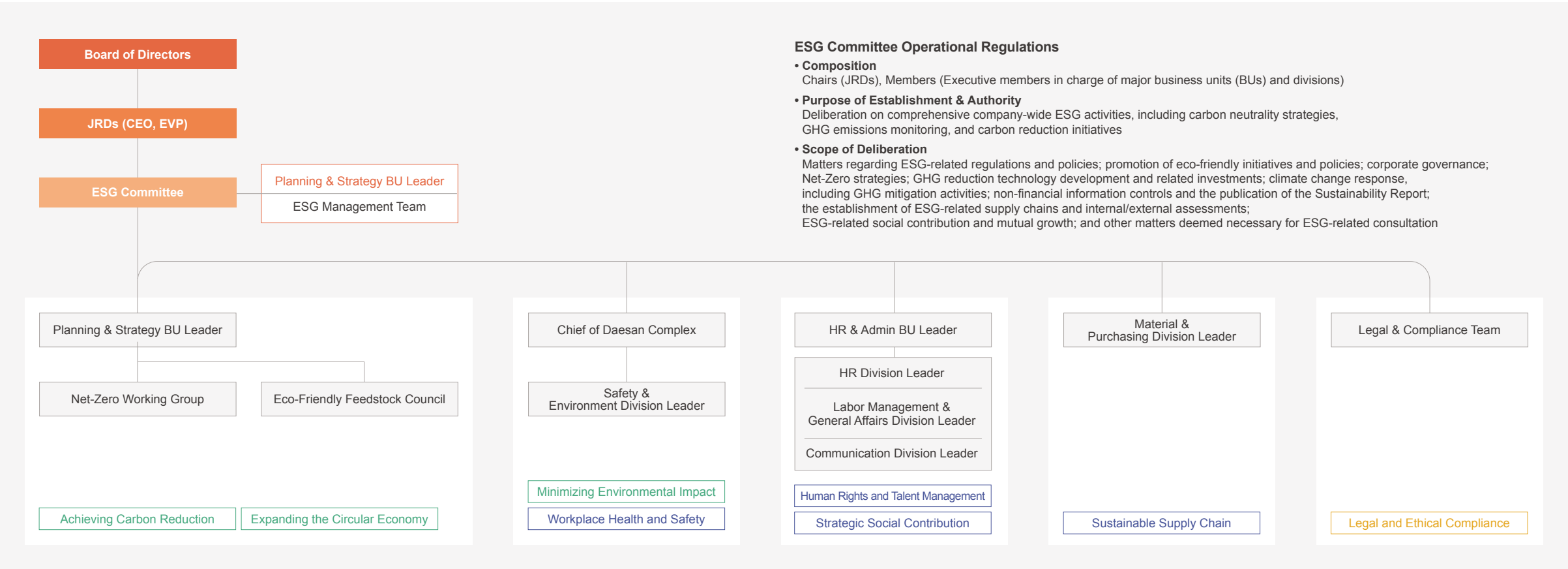
Remuneration for registered directors is disbursed within the aggregate limits approved at the General Meeting of Shareholders. In alignment with corporate Executive Compensation Regulations, compensation packages are divided into fixed components—including base salary and adjusted allowances—and variable performance-based bonuses. These performance incentives are differentiated based on comprehensive evaluations that measure both enterprise-wide achievements and the fulfillment of individual performance targets. The directors receive various employee benefits in line with internal policy, including private pension contributions, tuition assistance, Lunar New Year allowances, and welfare points. Upon retirement, severance pay is calculated by applying a payment rate to average wages and years of service, in strict accordance with our Executive Severance Pay Regulations.

Sustainability Management Governance

Sustainability Management Framework

ESG Committee

To strengthen our ability to address environmental, social, and governance (ESG) issues in a timely and structured manner, **Hanwha TotalEnergies Petrochemical** established an ESG Committee in December 2021. The committee is chaired by the Joint Representative Directors (JRDs) and supported by a dedicated ESG organization serving as the secretariat, with active participation from BU and Division leaders. Meeting annually, the ESG Committee supports company-wide executive decision-making on key ESG matters, including policies, regulatory compliance, and strategic initiatives. In 2025, the ESG Committee held one meeting to review implementation performance, strategic roadmaps, and critical issues across seven core areas, including the carbon neutrality strategy, greenhouse gas emissions monitoring, carbon reduction technology initiatives, expansion of the circular economy, safety and environmental health management, and compliance programs. The company is planning to deploy specialized training programs throughout 2026 to further enhance the committee's expertise regarding evolving ESG frameworks and climate change.



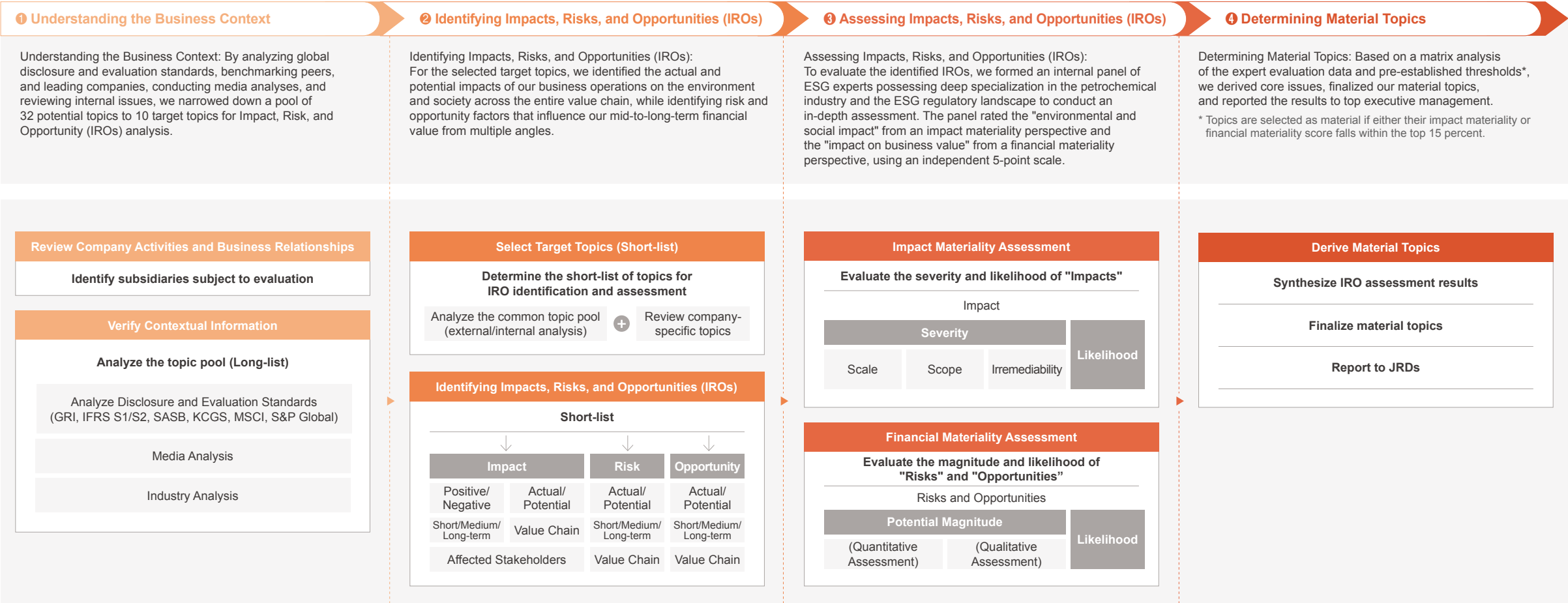
Double Materiality Assessment

Materiality Assessment Overview

Through the double materiality assessments, **Hanwha TotalEnergies Petrochemical** evaluates both our impact on society and the environment and the financial risks and opportunities affecting our business. This integration helps identify material topics for sustainability management. The identified material topics are systematically embedded into our sustainability strategy to continually refine and mature our approach.

The double materiality assessment was conducted in accordance with the **Hanwha Group** Materiality Assessment Guidelines, which apply the topic determination principles of the GRI Standards 2021 and the requirements of the European Sustainability Reporting Standards (ESRS). The evaluation followed a structured four-step process: understanding the business context, identifying impacts, risks, and opportunities (IROs), assessing the IROs, and determining the material topics.

Double Materiality Assessment Process



Double Materiality Assessment

Materiality Assessment Results

Through the double materiality assessment, we finalized three material topics: climate change response, sustainable product development and the circular economy, and compliance management. We disclose our performance and approach on these topics throughout this report based on the four disclosure pillars of Governance, Strategy, Risk Management, and Metrics and Targets. These targeted initiatives are being systematically executed by fully embedding them into our core sustainability strategy.

Topic		Relevant GRI	Impact Materiality	Financial Materiality	Integrated into Sustainability Management Strategy	
1	Material Topic Climate Change Response	GRI 201-2, 302-1, 305-1, 2, 7			E	Achieving Carbon Reduction
2	Material Topic Sustainable Product Development and the Circular Economy	GRI 306-4			E	Expanding the Circular Economy
3	Material Topic Compliance Management	GRI 2-27, 206-1, 418-1			G	Legal and Ethical Compliance
4	Pollutant Management (Air, Water, etc.)	GRI 303-1~5, 306-1~3, 5			E	Minimizing Environmental Impact
5	Occupational Health and Safety	GRI 403-1, 3~7			S	Workplace Health and Safety
6	Employee Training and Competency Development	GRI 404-2~3			S	Human Rights and Talent Management
7	Human Rights and Diversity	GRI 405-1			S	Human Rights and Talent Management
8	Ethical Business Practices	Company-Specific Indicator			G	Legal and Ethical Compliance
9	Community Impact Management	GRI 203-1			S	Strategic Social Contribution
10	Supplier Sustainability Management	Company-Specific Indicator			S	Sustainable Supply Chain

Double Materiality Assessment

Material Topic Management

* Period: Short-term (within 1 year) / Medium-term (2–5 years) / Long-term (6 years+)

Topic	Position in the Value Chain			Impact Classification			Identified Risks & Opportunities	Management Approach & Response Strategy	Report Section
	Upstream	Own Operations	Downstream	Positive/Negative	Actual/Potential	Period*			
1. Climate Change Response									
GHG emissions resulting from business activities.		•	•	Negative	Actual	Short-Medium-Long-term	(Risk) Increase in operating costs driven by rising purchase costs for GHG emission allowances.	Establish Scope 1 and 2 2050 Net-Zero targets and implement the carbon reduction roadmap.	“Achieving Carbon Reduction” p.26-35
Increased GHG emissions due to high reliance on fossil-based fuels in manufacturing processes.	•	•	•	Negative	Actual	Short-Medium-Long-term	(Risk) Increase in regulatory compliance costs, such as carbon taxes and intensifying demands to submit product carbon footprints.	Maintain close monitoring of regulations on fossil-based products and accelerate the development of low-carbon alternatives.	
Contribution to reducing national and local community GHG emissions by executing process efficiency and energy-saving projects.		•	•	Positive	Actual	Short-Medium-Long-term	(Opportunity) Reduction in operating costs through the implementation of process efficiency and energy-saving projects.	Continuously identify and execute carbon reduction initiatives, including process efficiency improvements.	
Contribution to energy transition and GHG emission reduction through the installation of onsite solar panels and the adoption of renewable energy.	•	•	•	Positive	Actual	Short-Medium-Long-term	(Opportunity) Mitigation of power market volatility and contribution to emission reductions via long-term renewable energy Power Purchase Agreements (PPAs).	Expand renewable energy procurement in alignment with the corporate strategy.	
2. Sustainable Product Development and the Circular Economy									
Continuous environmental burden across the entire product life cycle if a fossil-based product portfolio is maintained.	•	•	•	Negative	Actual	Medium-Long-term	(Risk) Loss of revenue opportunities if the sourcing of sustainable raw materials and product transitions are delayed.	Introduce low-carbon circular raw materials and expand the production of corresponding products.	“Expanding the Circular Economy” p.36-42
Contribution to expanding a circular economy and reducing resource consumption through the development of waste-to-resource products and businesses.	•	•	•	Positive	Actual	Short-Medium-Long-term	(Opportunity) Responding to the circular economy market through expanded waste-resource-based products and generating new revenue.	Continuously review and implement measures to expand waste recycling rates.	
Contribution to reducing customers' carbon footprints (Scope 3) by developing low-carbon intensity products leveraging low-carbon technologies.	•	•	•	Positive	Potential	Medium-Long-term	(Opportunity) Revenue growth and fulfillment of customer needs by developing product solutions that reduce carbon emissions and address environmental issues.	Scale up the transition to low-carbon fuels/raw materials and promote sustainable new businesses.	
3. Compliance Management									
Failure to establish a legal and regulatory compliance management framework could trigger negative consequences across society and the environment, transcending internal corporate risk.		•		Negative	Potential	Medium-Long-term	(Risk) Revenue losses caused by the suspension or interruption of business operations due to permit/license cancellations if safety and environmental compliance management proves inadequate.	Establish a proactive compliance risk detection system and achieve operational sophistication.	“Legal and Ethical Compliance” p.72-76
Cultivating a culture of legal compliance and enhancing social trust through the establishment and operation of a structured compliance program.		•		Positive	Actual	Short-Medium-Long-term	(Opportunity) Decreased legal violation risks and reduced risk-related costs—such as fines and litigation expenses—by refining and upgrading the compliance management framework.	Cultivate a compliance-oriented corporate culture and institutionalize customized training systems tailored by rank and job function.	

Double Materiality Assessment

Stakeholder Communication

Hanwha TotalEnergies Petrochemical recognizes stakeholder engagement as a core driver of our sustainable management and long-term growth. Operating through a diverse range of communication channels, the company actively incorporates stakeholder input and feedback directly into its business operations. This interactive approach anchors both external and internal communications; externally, the company transparently shares its performance across environmental, social, and governance areas through regular publications like the Sustainability Report, while internally pursuing targeted initiatives to embed ESG values into the organizational culture and build a shared consensus among employees.



OUR SUSTAINABILITY FRAMEWORK

Special Comment

Dear Valued Stakeholders,

As JRD and Executive Vice President of Hanwha TotalEnergies Petrochemical, I strongly believe that our responsibility goes beyond performance—it lies in the way we lead, act, and engage every day. Our sustainability framework embodies this conviction. It is not just a roadmap, but a commitment I expect each of us to carry, at every level of the organization. Fully aligned with our company's ambition, this framework is designed to anchor sustainability into our decisions, our operations, and our mindset. It challenges us to move forward with clarity, discipline, and a shared sense of accountability. What matters most to me is our collective engagement. By empowering our teams and working closely with our partners, we can transform our commitments into tangible progress and lasting impact. I am convinced that this dynamic will not only strengthen our resilience, but also reinforce the trust our stakeholders place in us. Together, we have the opportunity—and the responsibility—to shape a more sustainable, responsible, and forward-looking company. Trusting on your full support.

Dominique Vincent
JRD & EVP of Hanwha TotalEnergies Petrochemical Co., Ltd.

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ENVIRONMENTAL



**Achieving
Carbon Reduction**



**Expanding
the Circular Economy**



**Minimizing
Environmental Impact**

Achieving Carbon Reduction

Governance

Role and Oversight of the Board and Executive Management

Hanwha TotalEnergies Petrochemical recognizes the profound impact that climate change exerts on our business operations. To systematically address climate-related risks and opportunities, we have established and are operating a robust climate change response governance framework across the entire enterprise.

Board of Directors

The Board of Directors provides high-level oversight of climate change strategies, targets, and performance milestones while reviewing and voting on critical agenda items. The Board receives quarterly reports on our GHG emissions performance against targets and monitors the detailed implementation plans of our mid-to-long-term carbon reduction strategy at least once a year. This oversight includes an annual review of company-wide business risks, including climate-related risks, and their corresponding response measures, concluding with the final review and approval of annual emission targets and climate-related investments.

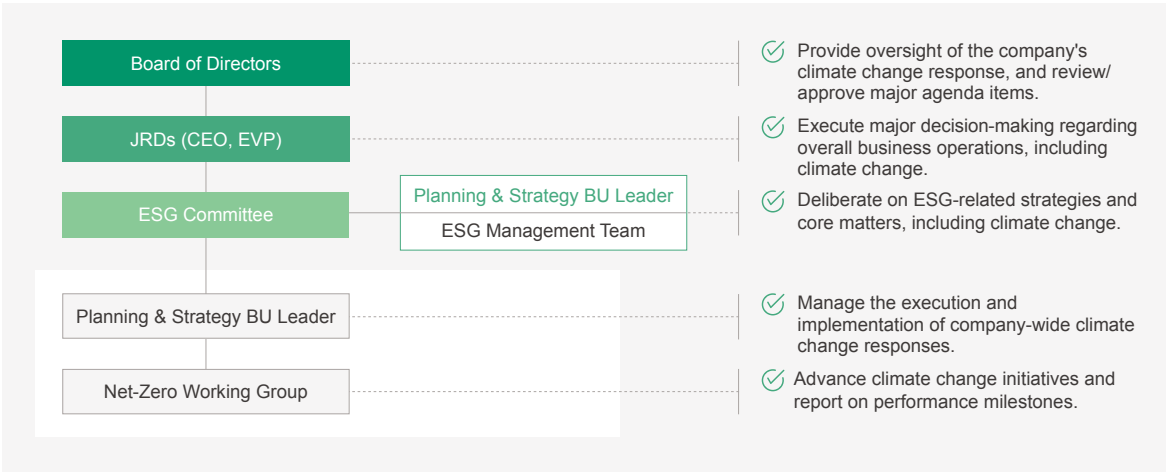
ESG Committee

To respond more proactively and practically to climate-related risks and opportunities, the company established the ESG Committee and a dedicated working organization, the ESG Management Team, in 2021. Executive management drives core decision-making regarding climate change and overall business operations through this committee. Convening annually, senior leadership uses this platform to oversee all ESG matters, including carbon neutrality strategies and GHG reduction initiatives. During the 2025 meeting, executive management evaluated detailed implementation plans for the mid-to-long-term carbon reduction roadmap, reviewing GHG emissions performance and reduction plans. The committee also finalized the expanded implementation of an internal carbon pricing system to institutionalize corporate culture focused on carbon reduction.

Net-Zero Working Group

The Net-Zero Working Group serves as the practical, execution-oriented organization dedicated to carrying out the detailed implementation plans of the mid-to-long-term carbon reduction strategy. The group meets regularly to track the progress of carbon reduction initiatives spearheaded by relevant departments—including Production, Technology, and the R&D Center—and to consult on ongoing operational issues. Continuous cross-functional alignment is maintained by sharing insights on emerging carbon-reduction technologies and shifting government policy trends, ensuring a highly consistent corporate response to climate change.

Climate Change Response Governance Structure



Climate-Related Reporting and Resolution History

Governance Body	Date	Agenda Items
Board of Directors	Feb 11, 2025	• Safety & Environment Report: Quarterly GHG emissions performance against targets (reported in Feb, Mar, Jun, Sep, Dec) • Report on the Carbon Reduction Roadmap (Jun) • Approval of Carbon Reduction Investments: Replacement of NCC heat exchangers (Oct) • Approval of the Business Plan: Including annual carbon emission targets (Dec)
	Mar 25, 2025	
	Jun 27, 2025	
	Sep 18, 2025	
	Oct 27, 2025	
ESG Committee	Dec 11, 2025	• Progress update on the mid-to-long-term carbon reduction roadmap • 2025 GHG emission allowances operational performance and plans • Expansion plan for the internal carbon pricing system • Review status of major carbon reduction initiatives (Plant / R&D)
Net-Zero Working Group	Jun 24, 2025	• Review of the HTC carbon reduction roadmap, 2025 carbon emissions status and projections, Key updates on the Emissions Trading Scheme (ETS), Progress status of carbon reduction R&D initiatives, Completion and outcomes of the Net-Zero system implementation
	Nov 28, 2025	

Achieving Carbon Reduction

Governance

Internal Carbon Pricing

Hanwha TotalEnergies Petrochemical factors climate-related risks and opportunities into its mid-to-long-term business plans, investment reviews, and major project approval processes to ensure sustainability is seamlessly integrated into its core business strategy.

To guarantee consistency and enable quantitative evaluations in strategic decision-making, the company operates an Internal Carbon Pricing (ICP) system. Through this system, greenhouse gas (GHG) reduction targets are incorporated against the Business-as-Usual (BAU) baseline when establishing mid-to-long-term business plans. Future projected emissions are quantified as a carbon liability to reflect them financially, while the investment review stage evaluates the economic viability of individual projects by factoring in expected GHG emissions and corresponding carbon costs to guide final decisions.

Introducing a new strategic phase to this initiative, the company upgraded its ICP framework in 2025, moving beyond the mere application of carbon pricing to focus on identifying GHG reduction initiatives and accelerating their execution. To achieve this, we designed a proprietary evaluation and incentive framework, established clear operational guidelines, and officially launched an enhanced "Phase 2 Internal Carbon Pricing System" in May 2026. This framework drives the achievement of mid-to-long-term reduction targets across the entire organization, fostering an operational culture where carbon neutrality is deeply embedded while advancing sustainable management.

The ICP trajectory is set across a mid-to-long-term path that comprehensively reflects domestic and international climate policies, regulatory trends, emission allowance prices in key regions, and market forecasts. This price path is reviewed and updated annually to adapt to shifting policy landscapes, market environments, and internal reduction targets. This proactive management framework enhances resilience against climate-related uncertainties and serves as a vital foundation supporting long-term corporate value creation.

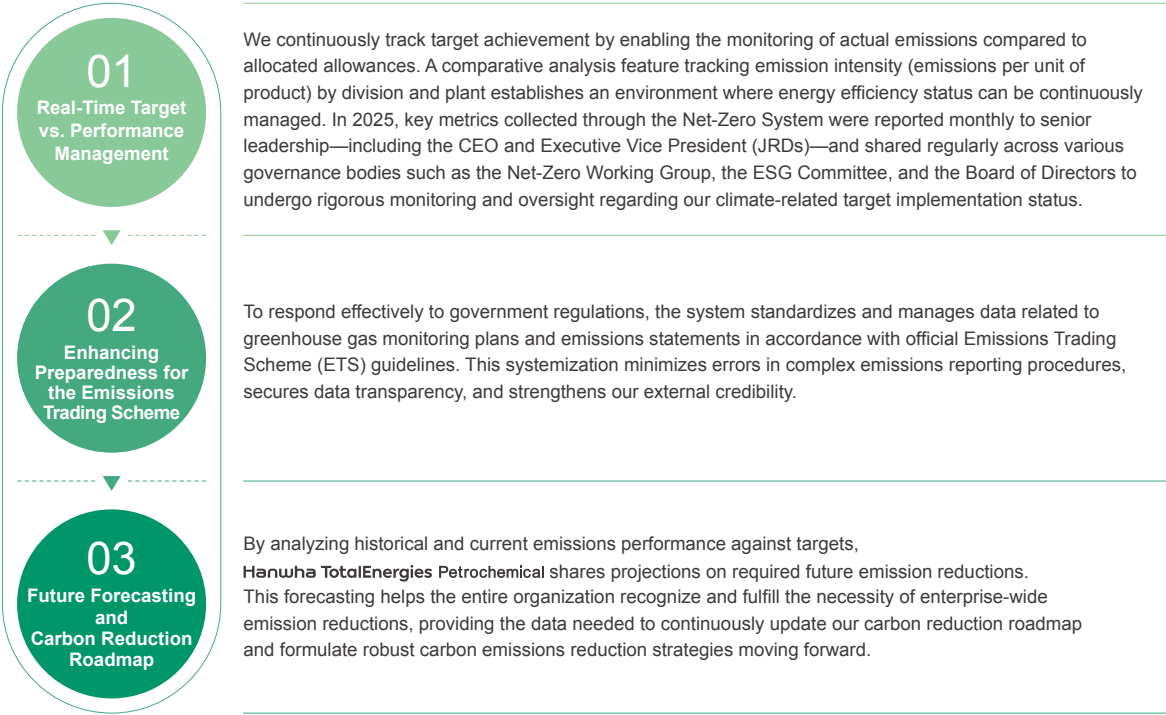
Key Decisions Incorporating Internal Carbon Pricing

Period	Item
Through Q1 2026	Utilized as the economic viability metric when establishing major planned investments.
Annually	Reported mid-to-long-term plans incorporating carbon pricing directly to the Board of Directors.
2024	Secured Board approval for the execution of renewable energy Power Purchase Agreements (PPAs).

Establishment of the Net-Zero Management System

Hanwha TotalEnergies Petrochemical operates a data-driven carbon emissions management system, known as the Net-Zero System, to ensure all employees clearly understand our carbon reduction targets and actively participate in tangible emission reduction activities. This system integrates previously fragmented carbon-related data, allowing us to manage the implementation status of our carbon reduction roadmap in real time.

Role of the Net-Zero Management System



Achieving Carbon Reduction

Strategy

Key Identified Climate-Related Impacts, Risks, and Opportunities

Impacts, Risks, and Opportunities(IROs)			Expected Timeframe			Expected Scope			Management Approach & Response Strategy	Report Section
			Short-term (within 1 year)	Medium-term (2–5 years)	Long-term (6+ years)	Upstream	Own Operations	Downstream		
Impact	Negative (Actual)	GHG emissions (Scope 1 & 2) resulting from business operations (operating energy-intensive processes such as the NCC).	•	•	•		•	•	• Establish Scope 1 and 2 2050 Net-Zero targets. • Continuously refine the carbon reduction roadmap and manage implementation.	p.35
		Increased GHG emissions due to high reliance on fossil-based fuels in manufacturing processes.	•	•	•	•	•	•	• Review infrastructure and technical solutions to drive the transition to low-carbon fuels.	p.32
	Positive (Actual)	Contribution to reducing national and local community GHG emissions by executing process efficiency and energy-saving projects.	•	•	•		•	•	• Continuously identify and execute carbon reduction initiatives, including process efficiency improvements and energy-saving measures.	p.32
		Contribution to energy transition and GHG emission reduction through the installation of onsite solar panels and the adoption of renewable energy.	•	•	•	•	•	•	• Expand renewable energy procurement in alignment with the corporate strategy.	p.33
Risk	Physical	Acute	Revenue losses and damage recovery costs arising from asset loss and production disruptions caused by extreme heat, flash floods, coastal flooding, typhoons, heavy rain, and wildfires.	•	•		•		• Establish an emergency response framework to prepare for disasters and hazards. • Conduct risk diagnoses and facility retrofits to prepare for acute physical risks.	p.30
		Chronic	Increased instability in industrial water procurement and rising response costs driven by long-term shifts in precipitation patterns and an increased frequency of droughts.		•		•		• Derive and execute water conservation initiatives. • Review water reuse methods and plans to secure additional reserve capacity.	p.38
			Increased energy consumption and GHG emissions caused by worsening extreme temperatures.		•		•		• Install high-efficiency heating and cooling facilities. • Establish and implement stage-based response procedures by heatwave alert level to protect worker health.	p.30
	Transition	Policy & Legal	Increased purchasing costs for GHG emission allowances driven by rising allowance prices and tightening emissions regulations (such as the reduction of free allocations).	•	•	•	•	•	• Strengthen carbon target implementation management via the Net-Zero System. • Establish business and investment decision-making processes based on the Internal Carbon Pricing (ICP) framework. • Participate in climate engagement activities.	p.27 p.33
			Increase in regulatory compliance costs, such as carbon taxes and intensifying demands to submit product carbon footprints.	•	•	•	•	•	• Systemize product Life Cycle Assessments (LCA) and manage carbon footprint metrics. • Continuously analyze the company's exposure and vulnerability to global carbon regulations and policies.	p.41 p.34
			Surges in domestic power generation costs and industrial electricity pricing driven by national energy transition policies (expanding renewable energy integration).	•	•		•		• Mitigate power market volatility and contribute to emission reductions via long-term renewable energy Power Purchase Agreements.	p.33
		Technology	Large-scale capital expenditures required during the deployment of low-carbon technologies and facility retrofits.	•	•		•	•	• Focus on reviewing energy-saving and high-efficiency facility replacement initiatives, prioritizing investments based on technology readiness levels (TRL) and abatement efficiency. • Utilize the Internal Carbon Pricing (ICP) system during investment reviews and final decision-making.	p.32 p.27
		Market	Customer attrition and revenue decline if corporate clients increasingly prioritize low-carbon and eco-friendly products.	•	•		•	•	• Develop low-carbon, sustainable products and secure international certifications (such as ISCC Plus, GRS, etc.) to help minimize our customers' carbon footprints.	p.39
		Opportunity	Resource Efficiency	Cost reductions driven by the adoption of efficient manufacturing and logistics processes alongside decreased resource consumption.	•	•	•		• Maximize high-efficiency capabilities across all production processes. • Advance resource efficiency initiatives throughout manufacturing operations.	p.32 p.38
			Energy Source	Expanded opportunities to utilize renewable energy in alignment with national energy transition policies.	•	•	•		• Execute and integrate corporate Power Purchase Agreements (PPAs).	p.33

Achieving Carbon Reduction

Strategy

Overview of Physical Risk Analysis

Hanwha TotalEnergies Petrochemical conducted a scenario-based physical risk analysis targeting our Daesan Headquarters (South Korea), Seoul Office (South Korea), and Dongguan Plant (China) to proactively identify the potential operational and financial impacts of climate-induced physical risks. For this analysis, we utilized Jupiter Intelligence's ClimateScore Global model and applied Shared Socioeconomic Pathway (SSP) scenarios—specifically SSP1-2.6, SSP2-4.5, and SSP5-8.5—based on the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report. The evaluation assessed eight distinct hazards, covering acute risks (typhoons, floods*, wildfires, and hail) and chronic risks (heavy rainfall, droughts, heatwaves, and cold waves), with risk exposure calculated based on hazard intensity and frequency of occurrence. Furthermore, we quantified potential financial impacts based on Average Annual Loss (AAL) metrics that reflect asset damage, inventory loss, and business interruption, which are expressed as a percentage of the total asset value of our operational sites.

This analysis was performed to identify mid-to-long-term risk trajectories and serve as foundational data for establishing site operation and risk management strategies; however, as these values represent scenario- and model-based projections, they may differ from actual realized impacts.

*Includes three types of flooding: coastal flooding, fluvial (river) flooding, and pluvial (surface water/urban) flooding.

Physical Risk Analysis Results

Physical Risk Exposure Analysis

Hanwha TotalEnergies Petrochemical's physical risk exposure levels vary depending on the geographical characteristics of each of our operational sites.

Daesan Headquarters

Located adjacent to the coastline, our Daesan Headquarters identified flooding and heavy rainfall as its core climate hazards. The flood risk is projected to persist at a "High" level and intensify to a "Very High" level by the year 2100. Additionally, drought and heatwave risks are predicted to grow progressively over time.

Seoul Office

For our Seoul Office, heavy rainfall and heatwaves emerged as the primary risks. Driven by urban heat island effects and localized torrential downpours, the risk of heavy rainfall is projected to reach a "Very High" level by 2100, while heatwave risks are also analyzed to increase over the mid-to-long term.

Dongguan Plant

Heatwaves and heavy rainfall are identified as dominant risk factors for the Dongguan Plant. Notably, the analysis shows that heatwave risk will reach a "Very High" level as early as 2030, and heavy rainfall risk is also expected to escalate to a "Very High" level after 2075.

Risk Exposure by Operational Site

		Very Low Low Medium High Very High				
Site	Climate Hazard	2025	2030	2050	2075	2100
Daesan Headquarters	Flooding	H	H	H	H	VH
	Strong Winds / Typhoons	L	L	L	L	L
	Heatwaves	M	M	M	M	H
	Hail	VL	VL	VL	VL	VL
	Drought	L	L	L	M	H
	Wildfires	VL	VL	VL	VL	VL
	Heavy Rainfall	M	M	M	H	H
	Cold Waves	VL	VL	VL	VL	VL
Seoul Office	Flooding	VL	VL	VL	VL	VL
	Strong Winds / Typhoons	VL	VL	VL	VL	VL
	Heatwaves	M	M	M	H	H
	Hail	VL	VL	VL	VL	VL
	Drought	L	L	L	L	M
	Wildfires	VL	VL	VL	VL	VL
	Heavy Rainfall	H	H	H	H	VH
	Cold Waves	M	L	L	L	L
Dongguan Plant	Flooding	VL	VL	VL	VL	VL
	Strong Winds / Typhoons	VL	VL	VL	VL	VL
	Heatwaves	H	VH	VH	VH	VH
	Hail	L	L	VL	VL	VL
	Drought	VL	L	L	L	M
	Wildfires	VL	VL	VL	VL	VL
	Heavy Rainfall	H	H	H	VH	VH
	Cold Waves	VL	VL	VL	VL	VL

* Based on the SSP5-8.5 Scenario

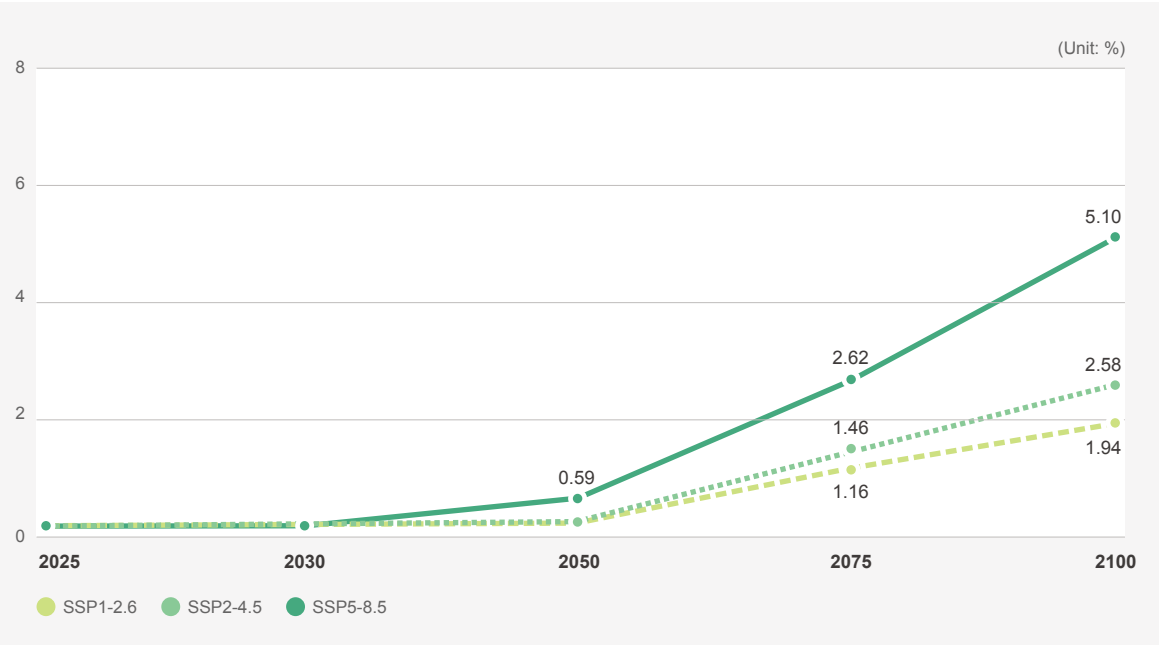
Achieving Carbon Reduction

Strategy

Financial Impact Assessment of Physical Risks

Hanwha TotalEnergies Petrochemical’s financial impact analysis of physical risks indicates that our loss ratio—measured against the total asset value of our operational sites—tends to increase progressively across different scenarios and timeframes. Notably, under the high-emission scenario (SSP5-8.5), the loss ratio is projected to expand to 0.59% by 2050, 2.62% by 2075, and up to 5.10% by 2100. In contrast, the middle scenario (SSP2-4.5) shows a relatively moderate upward trend, reaching 2.58% by 2100, while the low-emission scenario (SSP1-2.6) reaches 1.94% over the same period. The analysis confirmed a tendency for the scale of losses relative to the company’s total asset value to expand as climate change intensifies, driven by the increasing severity and frequency of natural hazards.

Projected Loss Ratio Relative to Total Asset Value by Climate Scenario



Resilience Assessment and Response Strategy Formulation

Hanwha TotalEnergies Petrochemical identifies risk exposure profiles unique to each operational site through scenario-based climate risk analyses, utilizing these insights to advance resilience assessments and tailored response initiatives.

In the short term, the company addresses core climate hazards by establishing emergency response frameworks for natural disasters, inspecting and retrofitting drainage facilities, optimizing workplace cooling loads, and strengthening employee health management systems. Rigorous standards are also applied to build the impacts of projected natural disasters directly into the plant engineering and design stages.

Over the medium and long term, climate change scenarios are being incorporated into capital expenditure plans to reinforce major infrastructure, diversify the supply chain, and upgrade emergency response protocols. These physical risk mitigations are paired with efforts to reduce transition risks and elevate operational efficiency by driving continuous improvements in energy efficiency.

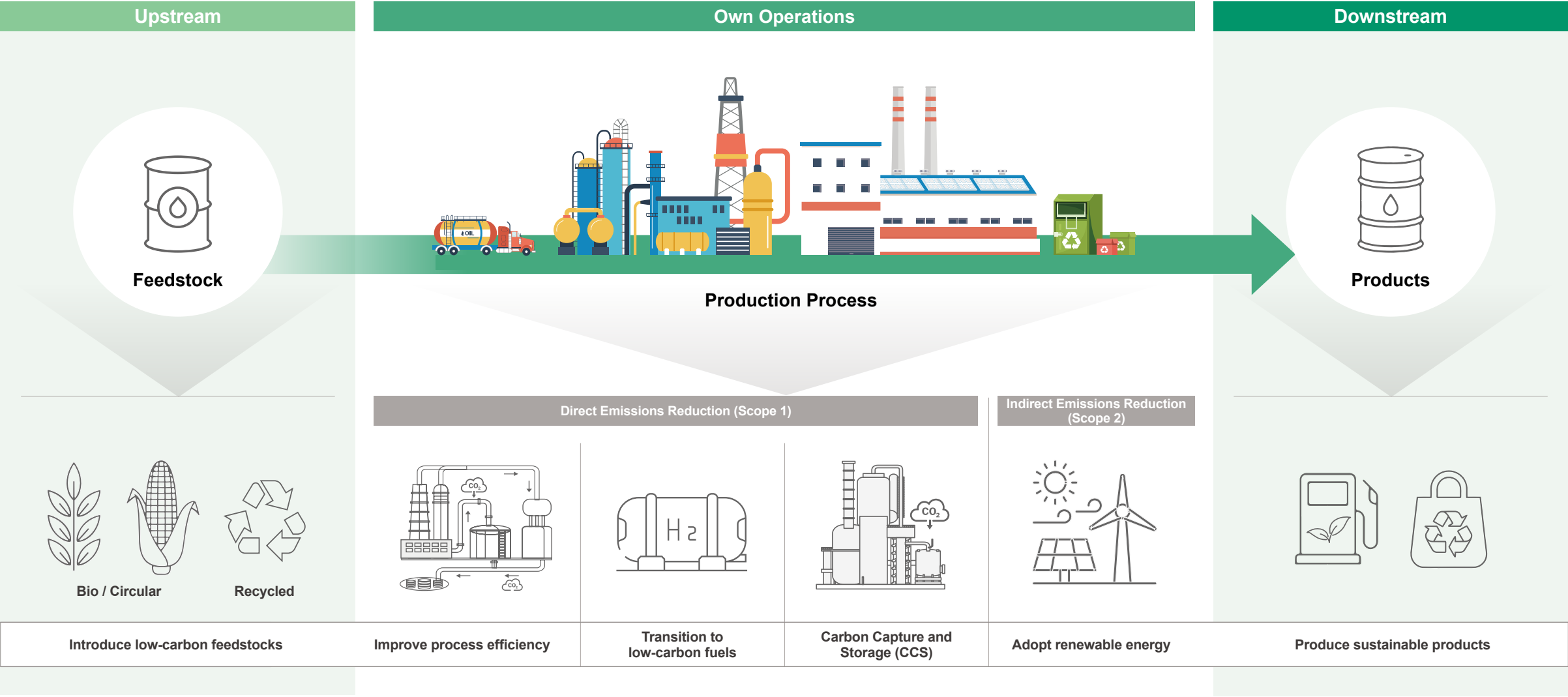
Based on the analysis, the current response framework is assessed to have sufficient adaptability to withstand short-term physical risks. However, should the high-emission scenario (SSP5-8.5) materialize, the loss ratio could expand sharply after 2075. Consequently, the company is strengthening its strategic resilience by executing medium-to-long-term facility investments and process transition roadmaps in a phased manner. These response initiatives mitigate the potential impacts of climate change, solidifying the foundation required to ensure uninterrupted business continuity across all operations.

Achieving Carbon Reduction

2026 Material Topic

Strategy

Climate Change Response: Carbon Reduction Implementation Strategy



Achieving Carbon Reduction

Strategy

Climate Change Response Activities

Process Efficiency Improvement and Energy Conservation

Hanwha TotalEnergies Petrochemical drives process efficiency improvements and the identification of energy conservation initiatives as top-priority climate change response tasks to concurrently achieve carbon emission reductions and enhanced cost competitiveness. Moving beyond basic consumption reductions, we aim to establish a sustainable manufacturing environment by maximizing high-efficiency capabilities across all production processes.

Key Achievements and Current Progress

01
Adoption of Innovative Technology (2025)

We introduced the Liquid Phase Xylene Isomerization (LPXI) process—the latest energy-saving technology—into our aromatics production line, marking a first for the domestic petrochemical industry. Successful deployment across Aromatics Production Teams 1 and 2 decreased energy consumption and maximized operational efficiency compared to conventional processes.

02
Energy Conservation TFT Operations (2026)

We are currently operating a dedicated Energy Conservation Task Force (TFT) to identify optimal energy efficiency by meticulously analyzing current operating parameters. Through field data analysis, this dedicated team focuses on uncovering low-cost, high-efficiency initiatives that yield immediate improvements, concentrating on operational optimization to drive tangible reductions in energy consumption.

03
Implementation of Carbon Reduction Study Outcomes (2027 and Beyond)

A broad array of initiatives was uncovered during a carbon reduction project discovery study conducted in 2023. Among these, four major projects requiring large-scale capital expenditure are scheduled for implementation during the Site 1 turnaround planned for 2027. We are currently advancing through the engineering design and facility investment preparation phases for these targeted projects.

Key GHG Reduction Activities in 2025

Category		Description	Target Energy Source	Expected GHG Reduction (ktCO ₂ e/yr)
Aromatics Production	Adoption of Latest Process	Introduction of advanced technical process (LPXI)	Fuel, Steam	34
	Adoption of Latest Technology	Energy conservation through the installation of new-type heat exchangers	Fuel	6
Feedstock Production	Operational Optimization	Energy conservation through operational optimization of NCC distillation towers	Steam	29
R&D	Pilot Demonstration Stage	Construction and operation of a Carbon Capture Pilot Plant	CCS (abatement measure)	7* (potential GHG reduction)

* Captured CO₂ is currently emitted without storage or utilization; the figure above represents the potential reduction effect expected upon future CO₂ storage and utilization.

Low-Carbon Fuel Transition

Hanwha TotalEnergies Petrochemical is accelerating its structural transition toward low-carbon fuels to fundamentally reduce emissions from fuel combustion, which accounts for over 70% of the company's total carbon emissions.

Establishing a Self-Sufficient Clean Fuel Framework and Superior Emission Competitiveness

By utilizing a production structure that recovers byproduct methane and hydrogen generated during manufacturing processes and reusing them as fuel, the company has successfully optimized its fuel emission intensity profile.

Accelerating the Transition from Liquid to Gaseous Fuels

The company is actively replacing the liquid fuels traditionally used in its boilers with cleaner gaseous alternatives like hydrogen and methane. To ensure the efficient allocation of available resources, Hanwha TotalEnergies Petrochemical is expanding its liquid fuel sales infrastructure while reviewing technical operational strategies to increase the co-firing ratio of hydrogen and methane within its manufacturing processes. This optimized, carbon-reducing fuel mix firmly solidifies the company's leadership in climate change response.

Achieving Carbon Reduction

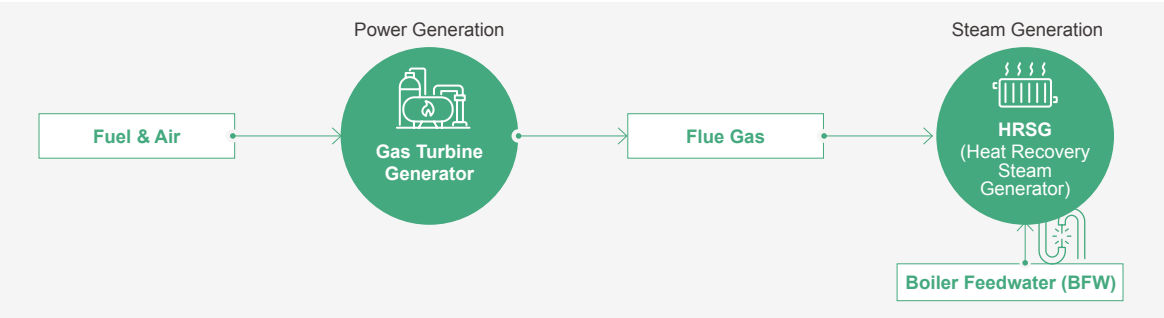
Strategy

Climate Change Response Activities

Waste Heat Recovery System

Hanwha TotalEnergies Petrochemical captures and utilizes high-temperature exhaust gas generated during the combustion process of its Gas Turbine Generators (GTGs) to maximize operational efficiency. While a substantial amount of thermal energy was historically lost through the exhaust stack even after producing high-pressure steam in the Heat Recovery Steam Generators (HRSGs), the company has increased its waste heat recovery rate by installing additional low-pressure steam generation equipment and boiler feedwater preheaters downstream. Recycling the low-pressure steam recovered through this system back into manufacturing processes reduces the operational load on conventional fossil-fuel-based boilers, mitigating greenhouse gas emissions.

Waste Heat Recovery Process Schematic



Introduction of Renewable Energy

Hanwha TotalEnergies Petrochemical operates an annual renewable energy adoption roadmap, aligning its corporate capabilities to accelerate the achievement of carbon reduction targets. The company drives systematic implementation by building a comprehensive renewable energy transition portfolio that balances the economic viability of individual RE100 compliance mechanisms with the broader business environment. Currently, a stable supply of green power is secured through a combination of onsite solar self-generation and the direct Power Purchase Agreement (PPA) executed in 2024. As a result of these operations, the company obtained certification of renewable energy use from the Korea Energy Agency for a total of 11,054 MWh as of 2025. This milestone translates into a tangible environmental impact, mitigating approximately 5,000 tons of greenhouse gas emissions annually.

Category	2025 Consumption (MWh)	GHG Reduction (tCO ₂ eq)
Onsite Solar Self-Generation	1,000	459.5
Direct PPA	10,054	4,619.0
Total	11,054	5,078.5

Development of Carbon Capture and Utilization (CCU) Technologies

Hanwha TotalEnergies Petrochemical combines internal research and development with national project collaborations and technology transfers from leading domestic research institutions to acquire foundational Carbon Capture and Utilization (CCU) capabilities and drive advanced technical optimizations. As part of this strategy, the company is developing technology to directly capture carbon dioxide (CO₂) from Naphtha Cracking Center (NCC) flue gas, the largest source of carbon emissions within the petrochemical complex. Aiming to complete a Process Design Package (PDP) for a commercial-scale plant with an annual capacity of 100,000 tons within 2026, the company completed construction on a carbon capture pilot plant in 2025. This facility is actively testing an NCC-specific CO₂ absorbent developed by the Korea Institute of Energy Research (KIER) to broaden its application scope across a wide range of gas concentrations and operating conditions. In tandem with capture optimization, the company is researching diverse carbon recycling technologies to convert captured CO₂ into raw materials and fuels. This includes advancing e-naphtha and e-SAF (Sustainable Aviation Fuel) manufacturing technologies that apply a carbon dioxide hydrogenation catalyst, which has already demonstrated excellent performance at the laboratory scale. Furthermore, we are developing technology to convert greenhouse gases—specifically carbon dioxide and methane—into synthesis gas (H₂ + CO) by applying Dry Reforming of Methane (DRM) catalyst technologies.

Climate Education

Hanwha TotalEnergies Petrochemical hosts an annual Net-Zero Seminar for its entire workforce to cultivate an organizational culture focused on emissions reduction through structured education and open communication. The June 2025 training sessions centered on two core operational areas: market trends in the Emissions Trading Scheme alongside internal GHG management measures, and the evolving landscape of ISCC certification combined with life-cycle assessment (LCA) carbon footprint management. Through these efforts, all employees—from production sites to frontline sales—deepen their understanding of the company's climate crisis response strategy and strengthen a "One-Team" mindset of working toward a shared goal. Beyond formal education, the company runs practical conservation programs designed to support broader environmental sustainability and lower utility consumption. These initiatives include workplace electricity reduction campaigns, technical efficiency upgrades for lighting and facility operations, and daily eco-friendly practices like using reusable cups.

Climate Engagement Activities

Hanwha TotalEnergies Petrochemical actively engages in government relations to ensure that public policy reflects the practical realities of the petrochemical sector. Throughout 2025, the company participated in consultative meetings and public hearings hosted by the Ministry of Trade, Industry and Energy and the Ministry of Climate, Energy and Environment (MCEE) while collaborating closely with the Korea Chemical Industry Association (KCIA) on regulatory requests. These channels allowed the company to contribute both directly and indirectly to shaping the 2035 Nationally Determined Contributions (NDCs) and the 4th Basic Plan for the Emissions Trading Scheme. By providing consistent input on climate-tech deployment, legislative frameworks, and private-sector policy needs, the company continues to advocate for pragmatic industrial solutions while solidifying its leadership in the global climate crisis response.

Achieving Carbon Reduction

Risk Management

Climate Risk Management System

Hanwha TotalEnergies Petrochemical systematically identifies and evaluates climate risks on a routine basis by fully integrating them into its overarching enterprise risk management framework.

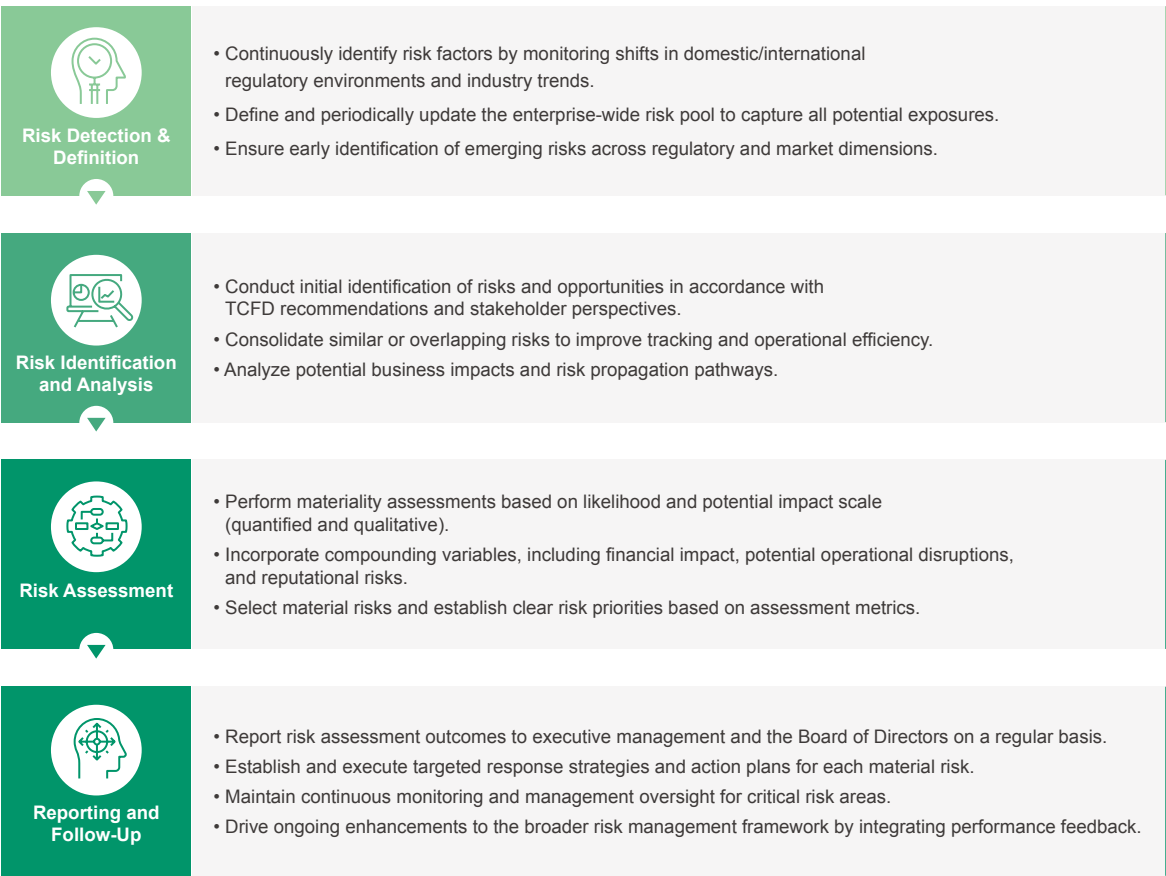
To uncover factors that could impact its mid-to long-term outlook, the company maintains a comprehensive climate risk-and-opportunity pool established in accordance with TCFD recommendations and shaped by diverse stakeholder perspectives.

Following the TCFD framework, these factors are classified into physical risks (acute and chronic), transition risks (policy, market, technology, and reputation), and strategic opportunities (energy resources, products, services, and markets). Their anticipated impacts are aligned directly with corporate strategic opportunities (resource efficiency, energy source, products and services, markets, etc.). The timing of their impacts is categorized as short-term (within 1 year), medium-term (2 to 5 years), and long-term (6 years or more), in connection with the company's response strategies.

The company evaluates physical risks across its three major operating sites using Shared Socioeconomic Pathway (SSP) scenarios. The entire risk-and-opportunity pool undergoes strict materiality assessments based on likelihood and potential impact scale, allowing the company to accurately prioritize core risks.

Once prioritized, these material risks are paired with actionable response strategies and integrated into the broader business risk matrix, where they are regularly reported to executive management and the Board of Directors for continuous monitoring, feedback, and long-term oversight.

Risk Management Process



Achieving Carbon Reduction

2026 Material Topic 

Metrics and Targets*

Establishing a Flexible Net-Zero Strategy in Response to Global Changes

Hanwha TotalEnergies Petrochemical operates an agile carbon reduction strategy that synthesizes global policies, market dynamics, technological breakthroughs, and regulatory frameworks to achieve the ultimate target of carbon neutrality by 2050.

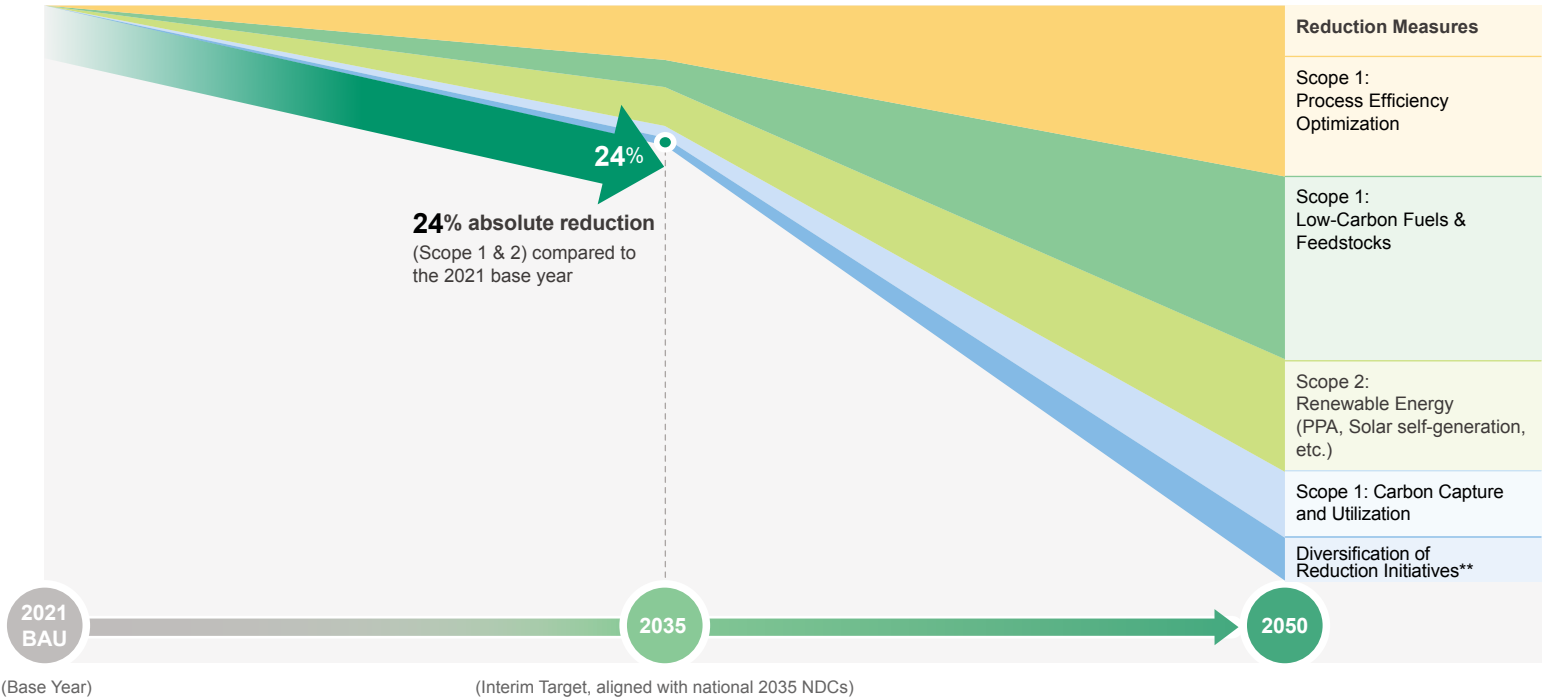
This year, while maintaining its ultimate goal of Net-Zero by 2050, the company refined its phased implementation strategy to be more practical and precise. A key element of this recalibration involved mapping mid-term milestones directly against the 2035 Nationally Determined Contributions (NDCs) and the commercialization timelines of core reduction capabilities, such as low-carbon fuel transitions and CCUS scaling.

Backed by strict governance and close monitoring of absolute Scope 1 and Scope 2 emissions, we will continue to chart and execute the optimal trajectory toward our net-zero goals.

GHG Emissions* Targets and Performance

Category	2021 BAU (Base Year)	Performance					Interim Target (2035)
		2021	2022	2023**	2024	2025	
Total Emissions	5,030	4,855	4,849	4,571	4,680	4,539	3,810
Scope 1	4,300	4,054	4,075	3,786	3,926	3,878	
Scope 2	730	802	774	785	754	660	
Reduction from Base Year (Rate)		175 (3.5%)	181 (3.6%)	459 (9.1%)	350 (7.0%)	491 (9.8%)	1,220 (24%)

* Types of GHGs (Scope 1 & 2): Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur Hexafluoride (SF₆).
** 2023 emissions include temporary reductions from facility shutdowns during a large-scale scheduled turnaround.



Scope 1 Process Efficiency Optimization and Transition to Low-Carbon Fuels & Feedstocks (Direct Emissions)

Scope 1 emissions are continuously reduced by improving energy efficiency across manufacturing processes and accelerating the adoption of low-carbon fuels and feedstocks. Process optimization initiatives—including the deployment of high-efficiency equipment and the recovery of low-temperature waste heat—are systematically implemented, while dedicated decarbonization investments are embedded into annual capital expenditure planning. In parallel, we are laying the foundation for a low-carbon transition by incorporating low carbon feedstocks such as bio-naphtha, and are driving the shift toward a sustainable business model.

Scope 2 Accelerating Renewable Energy Procurement and Building a Foundation for Energy Self-Sufficiency (Indirect Emissions)

Scope 2 emissions are reduced through the strategic procurement of renewable electricity, including direct Power Purchase Agreements (PPAs). To enhance resilience amid evolving energy markets, the company is reviewing and pursuing PPAs with various renewable energy sources and on-site solar power generation, while expanding its foundation for energy self-sufficiency.

* The climate targets of Hanwha TotalEnergies Petrochemical apply across all domestic operations. Mid-to-long-term emissions targets are reported annually to the Board of Directors for strategic oversight, and the recalibrated interim targets were finalized following a formal Board review in February 2026.
** Includes the procurement of KOCs (Korean Offset Credits).

Expanding the Circular Economy

Governance

Role and Oversight of the Board and Executive Management

Amid growing global concern over plastic waste and the introduction of legally binding regulations in major European markets, plastic recycling is becoming increasingly mandatory. As institutional focus shifts toward corporate climate resilience and decarbonized growth drivers, the sustainable materials market is projected to expand exponentially.

Capitalizing on these secular trends, **Hanwha TotalEnergies Petrochemical** is proactively positioning its portfolio within the high-growth circular products sector to secure long-term, sustainable commercial engines.

To institutionalize this transition, the company established the Eco-Friendly Feedstock Council in 2023, constructing a dedicated operational architecture for sustainable feedstock procurement and certified product manufacturing. This framework has enabled the commercial-scale mass production of sustainable products utilizing recycled waste resources. These operations are being systematically scaled to accelerate the development of a robust circular economy ecosystem.

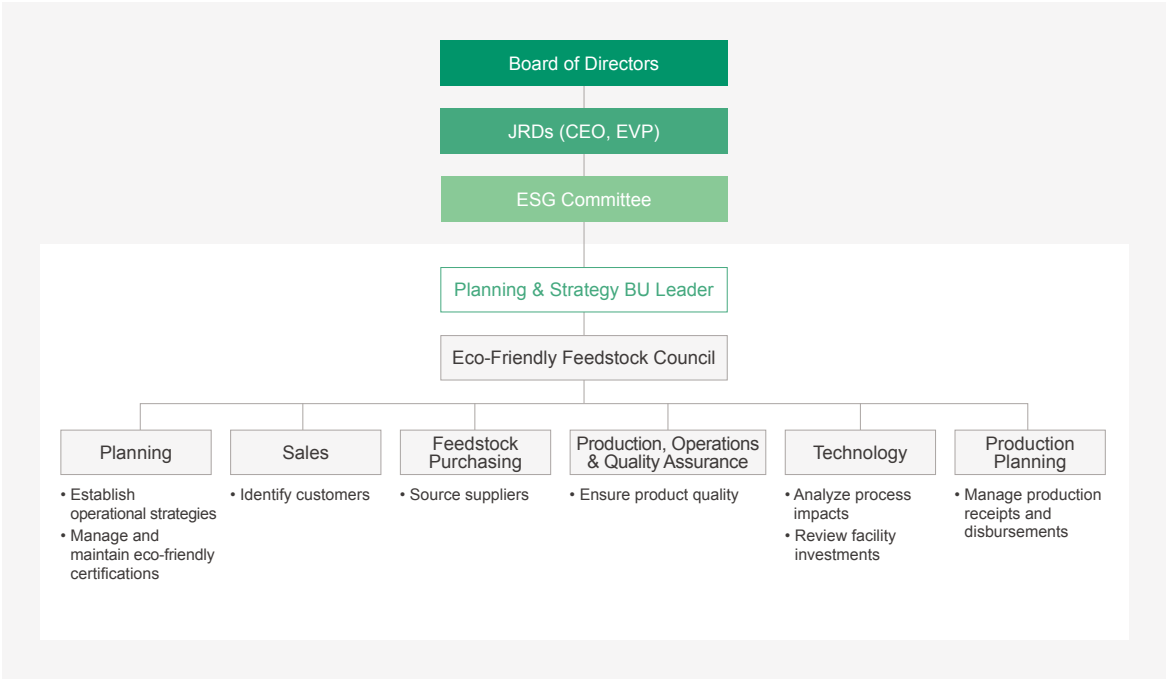
ESG Committee

Hanwha TotalEnergies Petrochemical operates an ESG Committee that oversees all ESG matters to maintain comprehensive governance and strategic oversight over all ESG activities, including carbon neutrality roadmaps and greenhouse gas abatement initiatives. The ESG Committee convenes annually to share activities related to the promotion of the circular economy—including mechanical recycling, chemical recycling, and the use of bio-based feedstocks—and receives reports on and reviews the progress and key issues of circular economy initiatives. By monitoring global plastic regulations and cross-border policy shifts, the Committee ensures compliance strategies remain strictly aligned with international frameworks.

Eco-Friendly Feedstock Council

To drive the operational execution of its circular economy strategy, **Hanwha TotalEnergies Petrochemical** manages a cross-functional internal governance body. The Eco-Friendly Feedstock Council convenes monthly to formulate enterprise-wide production roadmaps for sustainable and circular portfolios, and discusses related issues.

Circular Economy Governance Structure



Circular Economy-Related Reporting and Resolution History

Governance Body	Date	Reports & Resolutions
ESG Committee	Dec 2025	• 2025 Key Achievements and 2026 Strategy • Mechanical recycling performance and plans
Eco-Friendly Feedstock Council	2025 (Monthly)	• Feedstock procurement status and sourcing plans • Feedstock input records and process issues • Product sales plans • Credit status and other issues

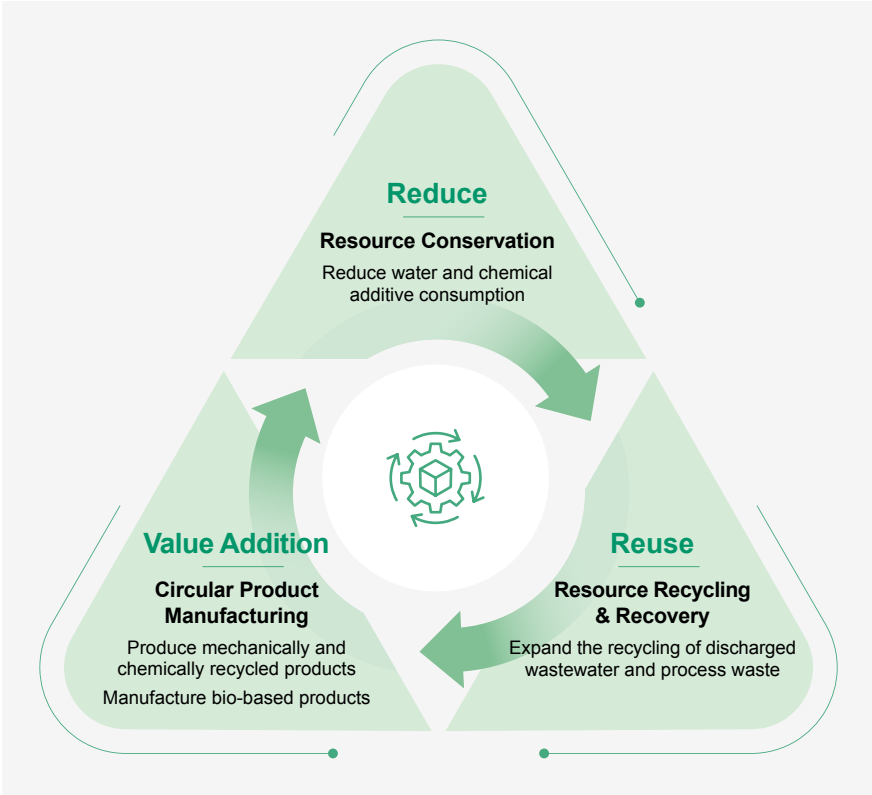
Expanding the Circular Economy

Strategy

Key Identified Impacts, Risks, and Opportunities

Impacts, Risks, and Opportunities(IROs)		Expected Timeframe			Expected Scope			Management Approach & Response Strategy	Report Section
		Short-term	Medium-term	Long-term	Upstream	Own Operations	Downstream		
Impact	Continuous environmental burden across the entire product life cycle if a fossil-based product portfolio is maintained.	•	•	•		•	•	- Introduce low-carbon circular raw materials and expand the production of corresponding products. - Drive the green transition of the business portfolio.	p.39, 42
	Resource recovery from waste (e.g., plastic waste, waste oil) and development of bio-based businesses.	•	•	•	•	•	•		
	Contribution to reducing customers' carbon footprints (Scope 3) by developing low-carbon intensity products leveraging low-carbon technologies.		•	•	•	•	•		
Risk	Increase in waste treatment and disposal costs generated during business operations due to tightening waste management regulations.		•	•		•		Continuously review and implement measures to expand waste recycling rates.	p.38, 49
	Loss of revenue opportunities if the sourcing of sustainable raw materials and product transitions are delayed.		•	•	•	•	•	Expand the introduction of sustainable raw materials and advance sustainable new business initiatives.	p.39, 42
Opportunity	Revenue growth and fulfillment of customer needs by developing product solutions that reduce carbon emissions and address environmental issues.		•	•	•	•	•	Scale up the transition to low-carbon fuels/raw materials and promote sustainable new businesses.	p.39, 42

Circular Economy Implementation Strategy



Expanding the Circular Economy

Strategy

Resource Conservation (Reduce) and Resource Recycling (Reuse)

Expanding Water Reuse and Recycling

Hanwha TotalEnergies Petrochemical proactively minimizes water consumption and expands recycling capacity across all operations, recognizing water as a critical asset for industrial resilience. We monitor water intake and effluent discharge while continually upgrading our wastewater infrastructure. Key operational controls include plant-specific primary pretreatment, real-time monitoring of raw wastewater streams, specialized processing for high-load refractory wastewater, continuous operation of advanced treatment facilities, and scheduled cleanings of primary collection basins to prevent the buildup of suspended solids.

In 2025, a dedicated Water Conservation Task Force executed 20 optimization initiatives, led by cooling tower water optimization and atmospheric condensate recovery systems. Additionally, we have developed a technical framework to reclaim treated effluent utilizing existing water treatment assets, with operational integration timelines currently under review. Through these targeted initiatives, we continue to mitigate our water footprint and maximize resource efficiency.

Reducing Chemical Usage

Hanwha TotalEnergies Petrochemical develops and implements optimal formulation blends that reduce additive inputs during manufacturing while maintaining product performance.

In tandem with these formulations, we are working to advance our waste mitigation processes through digital technologies, aiming to minimize waste generated in our production processes. To further optimize chemical management, we are evaluating the deployment of a real-time, online monitoring and automated injection control system for processing chemicals, such as neutralizing agents used for corrosion inhibition. By automatically calibrating chemical dosing based on real-time analytical data, this system aims to mitigate equipment corrosion hazards, curb unnecessary chemical consumption, and minimize secondary waste generation throughout the purification process.

Waste-to-Resource Circular Framework

Hanwha TotalEnergies Petrochemical moves beyond simple waste disposal and works to promote a circular economy. To scale its circular utilization rate, we continuously source and qualify new recycling partners, systematically shifting our waste architecture away from landfilling and incineration toward recycling and resource recovery. Through these targeted initiatives, we drive the transformation of waste streams into operational assets and contribute to revitalizing the circular economy.

Expanding Recycling Rates by Identifying New Recycling Vendors

Waste Classification	Before	After	Details
Wastewater Treatment Sludge	Landfill	Landfill / Recycling	Sourced new vendor (diverted 200 tons partially to recycling)
Metallic Spent Catalysts	Landfill	Recycling	Sourced new vendor (diverted all 700 tons to recycling)
Waste Organic Solvents	100% Recycled	100% Recycled	Sourced additional vendors

Spent Catalyst Recycling

Hanwha TotalEnergies Petrochemical actively drives the resource circularity of catalysts—a critical operational consumable—to minimize processing waste and maximize the value of finite resources.

Instead of immediately disposing of spent catalysts at the end of their initial operational lifespan, we strategically execute catalyst regeneration during scheduled turnaround maintenance periods. Through this regeneration process, we restore catalytic performance and extend replacement cycles, contributing to resource conservation and the reduction of waste generation.

Expanding the Circular Economy

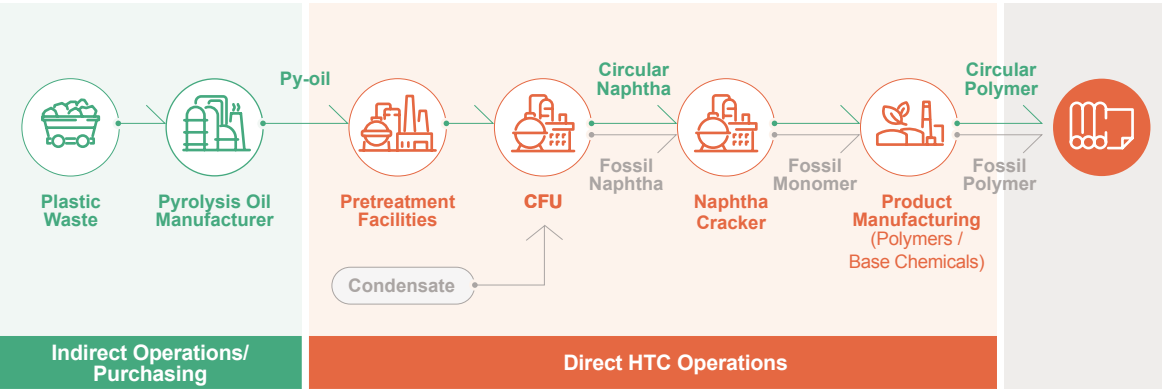
Strategy

Circular Product Manufacturing (Value Addition)

Chemical Recycling Initiatives

Hanwha TotalEnergies Petrochemical is building a circular product portfolio by adopting waste plastic pyrolysis oil and circular naphtha as feedstocks. Products based on pyrolysis oil can achieve properties equivalent to those of virgin plastics. Through our chemical recycling business, we work to decrease our reliance on fossil-based feedstocks, contribute to waste reduction, and advance high-value resource recovery in support of a circular economy. In 2025, we established a dedicated storage tank infrastructure for pyrolysis oil and diversified our supply channels to secure long-term sourcing stability, providing a foundation for continuous operational scaling. Furthermore, by maintaining annual renewals of our ISCC PLUS certification under the mass balance approach, we demonstrate traceability and transparency in the allocation of feedstock across our value chain, from procurement to final product sales. This supports our efforts to proactively address evolving global environmental regulations and the sustainability expectations of our global client base.

■ ■ ■ Circular Product Business Model



■ ■ ■ Status of Major Certifications

Category	Description	Certified Products
ISCC PLUS	A global sustainability certification verifying that manufacturing processes use bio-based and recycled feedstocks to produce sustainable products.	Total of 12 product categories (PP, HDPE, EVA, LDPE, LLDPE, BD, SM, NAPHTHA, EL, PL, PX, BZ)
GRS	A global certification framework for product circularity, awarded to products containing at least 20% recycled content.	Compounded PP (Polypropylene)

Mechanical Recycling Business

Hanwha TotalEnergies Petrochemical develops and mass-produces Compounded PP utilizing Post-Consumer Recycled (PCR) plastic materials. This initiative directly aligns our product portfolio with evolving market dynamics and global regulatory frameworks. To actively support our clients' carbon reduction targets, we collaborate with major domestic automotive manufacturers and consumer electronics companies to engineer tailored material formulations. We execute the following initiatives to support commercialization of end-user products incorporating PCR materials:

Developing Products Utilizing PCR

Hanwha TotalEnergies Petrochemical collaborates closely with clients to develop a diverse portfolio of products leveraging Post-Consumer Recycled (PCR) materials. These applications span automotive interior/exterior components, electronic parts, home appliances, and industrial materials. In 2025, we partnered with a major domestic automaker to develop and commercialize five products containing 30% PCR for automotive exterior components. Additionally, we signed a resource circulation agreement with LocknLock to collect waste plastics and recycle them into materials for heating mats and automotive components.

Securing Sourcing Competitiveness

To deliver high-quality PCR-based products to our clients, we systematically secure high-quality PCR feedstocks for our current portfolio while continuously working to expand our sourcing channels.

Monitoring Regulations and Industry Trends / Securing Certifications

We continuously monitor global regulatory landscapes and industry trends—particularly in Europe—to align our product offerings accordingly. The company has obtained GRS (Global Recycled Standard) certification and supplies certified products to its clients.

Expanding the Circular Economy

2026 Material Topic

Strategy

Circular Product Manufacturing (Value Addition)

Waste Oil Resource Recovery Business (Bioenergy Business)

Hanwha TotalEnergies Petrochemical produces bio-based, circular products via a co-processing method utilizing used cooking oil. We are currently scaling this capability by retrofitting existing operational units to produce Sustainable Aviation Fuel (SAF). SAF produced from waste oil is known to reduce carbon emissions compared to conventional jet fuel.

As regulatory mandates and stakeholder demands for eco-friendly aviation fuels accelerate worldwide, numerous countries are implementing mandatory SAF blending targets. We are actively optimizing our readiness to satisfy this shifting demand, including South Korea's upcoming mandate requiring a 1% SAF blend by 2027. While we currently leverage existing infrastructure to manufacture these high-value sustainable products, we are also evaluating the construction of a dedicated production facility to drive future growth.

We maintain annual renewals for our ISCC PLUS Co-processing and ISCC EU (Trader) certifications, and we aim to secure ISCC EU and ISCC CORSIA certifications in 2026.

Through the expansion of low-carbon-intensity bioenergy production, including SAF, we actively support the aviation and logistics sectors in mitigating carbon emissions while advancing a circular economy.

Post-Consumer Product Circularity Initiatives

Waste Packaging Bag Recycling

Hanwha TotalEnergies Petrochemical operates a circular framework that recovers and re-manufactures packaging bags used during resin product shipments. Rather than treating these bags as conventional operational waste, we collaborate with supply-chain partners to process them through a mechanical recycling loop, transforming them back into recycled packaging bags for reuse. Previously, used shipping bags were sold or disposed of externally. Re-evaluating this process through the lens of a circular economy, we converted this linear consumption model into a circular architecture.

By collecting post-use packaging bags and reintroducing them into our logistics operations as recycled packaging, we processed 16,000 tons of waste bags via mechanical recycling in 2025. This structural shift helps reduce plastic waste generation and virgin feedstock consumption.

Furthermore, because this framework relies on close supplier alignment, it helps expand resource circulation practices within our supply chain. Moving forward, we will continue to identify opportunities to repurpose waste streams across our production and logistics footprints while scaling actionable initiatives to fortify the circular economy.

New Value for Waste Plastics: A Circular Economy Collaboration Case

Since 2024, we have partnered with LocknLock, a global consumer goods enterprise, on a plastic recycling initiative. In 2024, this partnership successfully diverted 1,730 kg of collected airtight food containers to manufacture modular underfloor heating panels. In 2025, the initiative processed an additional 1,440 kg of waste containers into automotive components.

This collaboration establishes a practical circular model that converts post-consumer waste into industrial-grade materials through business-to-consumer (B2C) partnerships. Executed in tandem with LocknLock's "Love for Planet" resource circularity campaign—an initiative launched in 2020 that collects discarded plastic containers to manufacture camping gear, construction materials, and public infrastructure—this project serves as a representative example of corporate and civic collaboration.

Building on this success, we plan to expand partnerships with diverse consumer goods companies and social enterprises to accelerate industrial resource recovery and advance the circular economy.

Expanding the Circular Economy

2026 Material Topic



Strategy

Reducing Product Environmental Impact

Product Carbon Footprint Assessment

Hanwha TotalEnergies Petrochemical operates an LCA-based (Life Cycle Assessment) carbon footprint management system across its entire product portfolio to satisfy global carbon regulations and systematically quantify environmental impacts. We expect this proactive data acquisition to serve as a foundation for responding to future global environmental regulations and client demands for carbon information.

As the capability to provide verified environmental data emerges as a core corporate differentiator, we are matching this demand with a systematic data management framework. In 2025, the company established a standardized carbon footprint calculation process and deployed its internal "Net-Zero System" to build in-house carbon data calculation capabilities. Notably, we completed comprehensive carbon footprint calculations for all products based on 2024 operational performance. By implementing sensitivity analysis and simulation functionalities, the company has strengthened its responsiveness to global client requirements.

Furthermore, we secured third-party external credibility for our data by obtaining the Carbon Platform System (CPS) certification from the Korea Management Registrar (KMR) in accordance with ISO 14064-1. Looking ahead, we will continuously expand our calculation scope in tandem with our growing circular product portfolio, continuously upgrading this system to solidify the sustainable competitiveness of our products.

Improving Product Environmental Performance

Hanwha TotalEnergies Petrochemical focuses on material innovation to reduce plastic use by developing high-rigidity materials and improving recyclability. Our next-generation high-rigidity, large-diameter polyethylene (PE) material for pipes enables thinner pipe walls through its excellent pressure resistance, contributing to lower raw material consumption and reduced carbon emissions during production and transportation. Its excellent crack resistance also enables trenchless installation, providing a solution for replacing aging pipelines with lower environmental impacts than conventional excavation methods.

Additionally, our Clear and Super impact Polypropylene (CSPP), engineered for wire and cable insulation, offers superior heat resistance and insulation performance compared to conventional cross-linked alternatives while being recyclable upon disposal. The company is also contributing to plastic resource circularity with its high-strength BOPE (Biaxially Oriented Polyethylene) products, which allow multi-layer flexible packaging materials to be replaced with a single, highly recyclable PE mono-material.

Risk Management

Hanwha TotalEnergies Petrochemical, the diverse risks that may arise during the establishment of a circular economy are managed by integrating them into the enterprise-wide business risk assessment and management processes. Across every stage of the circular cycle—from developing sustainable products to managing water, waste, and recycling—we systematically identify potential risk factors. Our internal teams then comprehensively evaluate both the likelihood and the financial or operational impact of these risks. Utilizing these assessment results, we formulate response strategies and define specific action items for high-priority material risks. These established strategies are reflected in key corporate decision-making processes, such as investment decisions, research and development directions, and business portfolio adjustments. This ensures we are mitigating risks while simultaneously capturing new market opportunities.

Operationally, dedicated internal bodies like the Eco-Friendly Feedstock Council and the ESG Committee maintain rigorous oversight. They regularly review our progress on sustainable initiatives and closely monitor evolving global regulations and technology trends. This continuous governance allows us to navigate the uncertainties inherent in transitioning to a circular economy—specifically addressing feedstock supply volatility, quality fluctuations in recycled materials, tightening compliance mandates, and shifting market demands.

Expanding the Circular Economy

Metrics and Targets

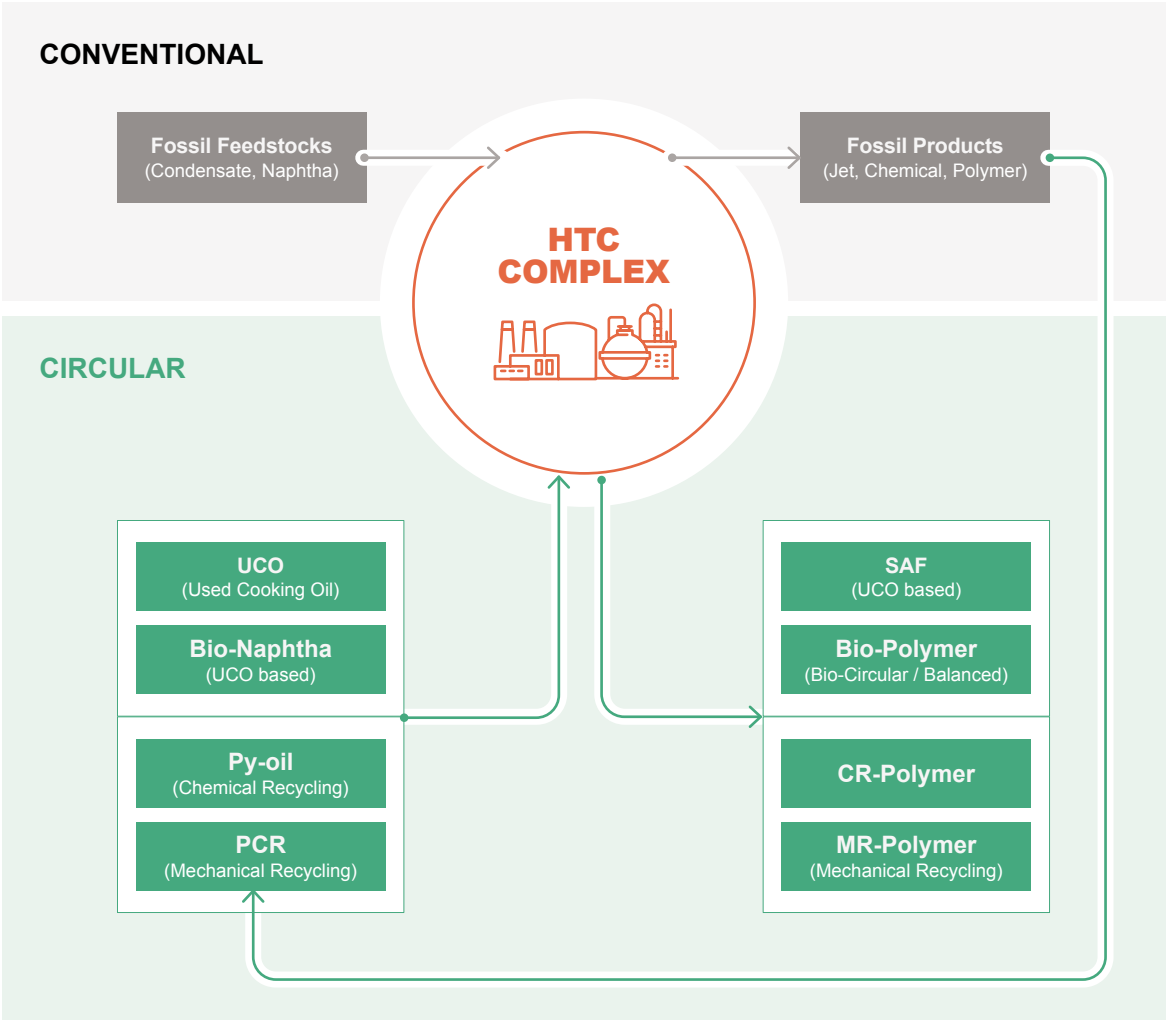
Expanding the Circular Economy and Realizing a Low-Carbon Portfolio

Hanwha TotalEnergies Petrochemical is accelerating its business model transformation to establish a robust circular economy and realize a low-carbon product portfolio. To reinforce this framework, we are scaling mechanical recycling (MR) alongside advanced chemical recycling (CR) technologies. Utilizing pyrolysis oil (Py-oil) as a production input allows us to drive down plastic waste generation while solidifying a sustainable resource loop. Furthermore, the company is introducing used cooking oil (UCO) and bio-naphtha as alternative feedstocks to expand its low-carbon product lineup, including Sustainable Aviation Fuel (SAF) and bio-based plastics.

Circular Economy Expansion: Strategies, Targets, and Performance

Goal	Strategic Initiatives	Mid-Term Target (~2030)	2025 Performance
Expanding the Circular Economy	Resource conservation	Establish highly efficient production architectures focused on reducing the consumption of resources including water, raw materials, and chemical substances.	- Formed a dedicated water conservation task force to identify water-saving initiatives. - Conducted spent catalyst recycling activities.
	Resource recycling & reuse	- Maximize the internal circular reuse of operational waste generated onsite while expanding external recycling partnerships. - Expand the recycling and reuse of treated wastewater effluent.	- Expanded recycling rates by identifying new waste recycling vendors. - Reviewed measures for recycling discharged water.
	Circular product manufacturing	Secure competitive sustainable products that drive resource conservation and support our clients in mitigating their Scope 3 emissions.	Expanded revenue streams from circular economy products and secured additional sustainability certifications.
		Build a low-carbon portfolio and transition to a sustainable business model.	Ongoing review of sustainable new business opportunities. (introduction of waste-resource and bio-based feedstocks)

Circular Economy Expansion and Low-Carbon Portfolio Business Model



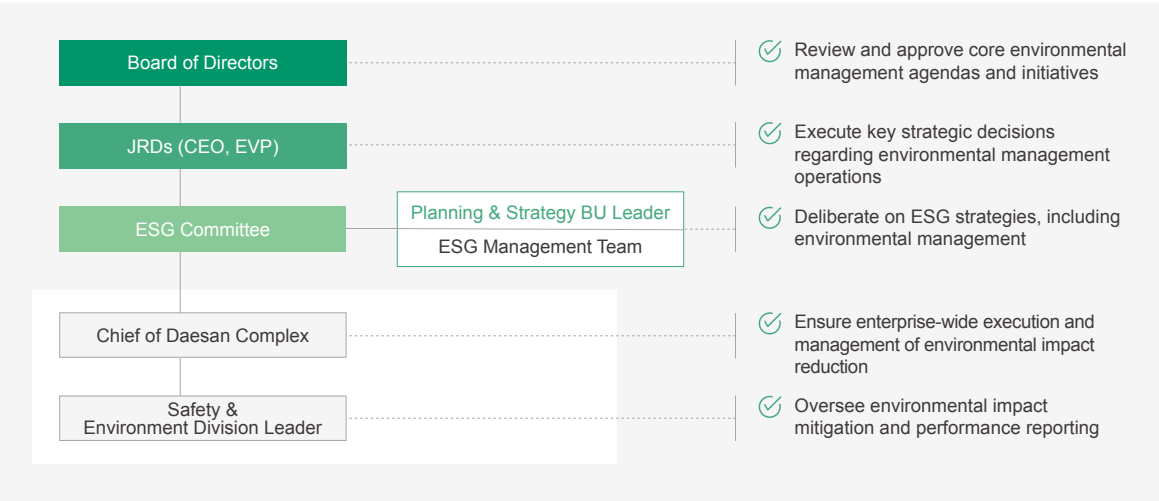
Minimizing Environmental Impact



Environmental Management Framework

Hanwha TotalEnergies Petrochemical has established an enterprise-wide governance structure to drive meaningful environmental management, continuously strengthening our decision-making processes for all critical environmental matters.

Environmental Management Governance Structure



Environmental Management Policy

SHE Strategic Framework

- **VISION:** A trusted company creating opportunities through Safety, Health, and Environment (SHE).
- **MISSION:** We recognize SHE as a core driver of corporate growth and social responsibility. Through strict compliance, continuous improvement, active engagement, and transparent management, we fulfill our duties to our customers and society, constantly innovating to achieve world-class SHE excellence.
- **OBJECTIVES:** Mitigating environmental pollutants, ensuring compliant management, advancing system-driven operations, and reinforcing emergency response readiness.

Environmental Management Strategic Framework

Under the vision of becoming “A trusted company creating opportunities through Safety, Health, and Environment (SHE),” Hanwha TotalEnergies Petrochemical operates a comprehensive environmental management strategy designed to minimize environmental impacts across our entire value chain. Based on six fundamental principles—reduction of environmental pollutants, compliance management, system-based management, accident prevention and health promotion, shared growth with business partners, and emergency response readiness—the company systematically manages action plans for key environmental, safety, and health issues. To embed minimizing environmental impact as a core DNA for corporate growth, we rigorously evaluate our environmental performance through an enterprise-wide management system. By actively sharing these core values across our workforce, we continue to elevate our operations to achieve world-class SHE management.

Environmental Management Strategy, Target, and Performance

Goal	Strategic Initiatives	Mid-Term Target (~2030)	2024 Performance	2025 Performance	Details
Minimizing Environmental Impact	Regulatory compliance and adherence to international standards	Maintain international Environmental Management System (EMS) certifications	ISO 14001 certification maintained	ISO 14001 certification maintained	Certification maintained
	Reduction of environmental pollutants	Manage air pollutant emissions below statutory limits	3,129 tons emitted	2,724 tons emitted	13% reduction
		Reduce water pollutant discharge volumes	52 tons discharged	53 tons discharged	1.9% increase
		Monitor and control core chemical emissions	25.7 tons emitted (5 chemical types)	25.3 tons emitted (5 chemical types)	1.6% reduction
	Waste management	Maximize recycling rates to advance a circular economy	72% recycling rate	82% recycling rate	10%p increase

* Air Pollutant Emissions = Nitrogen Oxides (NOx) + Sulfur Oxides (SOx) + Particulate Matter (Dust);
Water Pollutants = Total Organic Carbon (TOC) + Suspended Solids (SS); Waste = General Waste + Designated Waste
* Chemicals = Benzene, p-Xylene, Toluene, Styrene, 1,3-Butadiene

Key Identified Impacts, Risks, and Opportunities

Impacts, Risks, and Opportunities(IROs)	
Negative Impacts	Deterioration of local air quality due to the atmospheric release of air pollutants generated by manufacturing facilities Toxicity risks to aquatic ecosystems if process wastewater containing hazardous chemical substances is not properly treated.
Risk	Increased capital expenditures and operational costs for additional control facilities driven by stricter regulatory standards, such as the Integrated Environmental Management System.
Opportunities	Mitigating water scarcity risks and reducing manufacturing water costs by implementing advanced purification of treated effluent for industrial reuse.

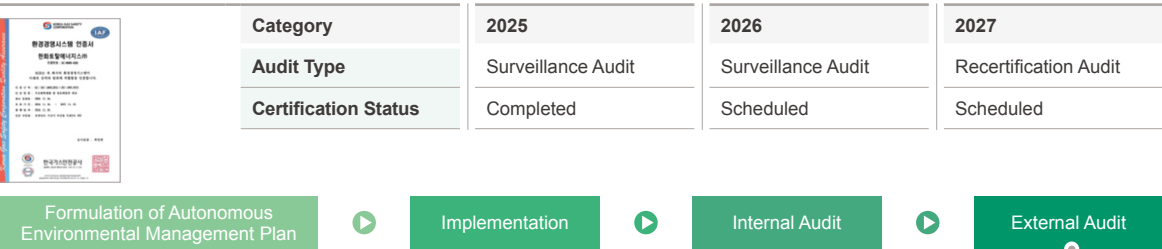
Minimizing Environmental Impact



Environmental Management System

Environmental Management System (ISO 14001 Certification)

To align our operations with global standards, **Hanwha TotalEnergies Petrochemical** operates an established Environmental Management System certified under the international ISO 14001 standard. We maintain this baseline through rigorous annual surveillance audits and comprehensive recertification assessments every three years. To drive the continuous improvement of this system, each production department formulates an annual autonomous environmental management plan. This framework relies on a structured PDCA (Plan-Do-Check-Act) cycle—verifying execution through internal audits and completing final verification via external assessments—to maintain ISO 14001 certification.



* PDCA (Plan-Do-Check-Act): A continuous improvement framework designed to drive ongoing performance optimization by sequentially planning, executing, evaluating, and adjusting operational processes.

Integrated Environmental Management System Operations

To enhance the reliability of our regulatory compliance and maximize data efficiency, we established an enterprise-wide Integrated Environmental Management System in 2024. The system centralizes and systematically monitors 12 core operational metrics—including pollutant emission data, fuel types, raw materials, and energy consumption rates—while unifying previously fragmented data assets to fulfill statutory record-keeping mandates. As a direct outcome of these proactive consolidation efforts, our facilities were designated as an "Excellent" workplace during the 2024 statutory audit under the Act on the Integrated Control of Pollutant-Discharging Facilities. This top-tier rating extended our regular inspection cycle to a maximum three-year interval, validating the strength of our environmental management capabilities. (Regular inspection cycle: Poor — 1 year, Average — 2 years, Excellent — 3 years)

Category	Expected Benefits
Operational Efficiency	Maximizing workplace efficiency by implementing automated data streams and integration for all core environmental metrics.
Zero Regulatory Risk	Enhancing regulatory compliance through data verification processes that help identify human errors and track historical records.
Establishment of an Integrated EMS	Streamlining statutory regulatory audits by centralizing the massive datasets and operational documentation required under the Integrated Environmental Management Act into a single, unified platform.

Environmental Management Training

To raise organizational awareness regarding minimizing environmental impacts, **Hanwha TotalEnergies Petrochemical** conducts mandatory periodic Safety, Health, and Environment (SHE) training for all employees. Additionally, we operate a range of specialized competency advancement programs, including statutory training tailored specifically for personnel managing air quality, water quality, and hazardous chemical substances.

Environmental Management Training Status

Category	Course Title	Target Audience	Duration	2025 Performance
Statutory Compliance Training	Hazardous Chemical Safety Training (Handlers)	Designated Chemical Handlers	16 hrs	100% completion rate among required personnel
	Hazardous Chemical Safety Training (General Personnel)	All personnel other than handlers	2 hrs	
	Hazardous Chemical Safety Training (Managers)	Appointed managers	16 hrs (32*)	
	Specialized Training for Integrated Environmental Managers	Environmental Department Practitioners	24 hrs (40**)	
Navigating and Complying with Stricter Environmental Regulations	Integrated Environmental Permitting Frameworks	Engineers and SHE Coordinators	2 hrs	1 session
	Chemical Accident Prevention and Management Planning	Engineers and SHE Coordinators	4 hrs	1 session
	Understanding and Writing MSDS	Engineers and SHE Coordinators	4 hrs	1 session
	Navigating and Complying with REACH Regulations	Engineers and SHE Coordinators	4 hrs	1 session
	Fundamental Environmental Management Training	Newly Hired Technical Personnel	4 hrs	2 sessions
Advanced Competency Training for Environmental Experts	ISO 14001 Practitioner Course	Environmental Department Practitioners	14 hrs	1 session
Chemical Management Competency Training	K-REACH Training (Use Surveys)	Chemical Regulation Practitioners	1 hr	2 sessions
Waste Management Training	Advanced Waste Management Practices	SHE Coordinators and Partners	1 hr	2 sessions

*32 hours required for newly appointed managers who do not hold a relevant national technical qualification.
**40 hours required for newly appointed personnel.

Minimizing Environmental Impact

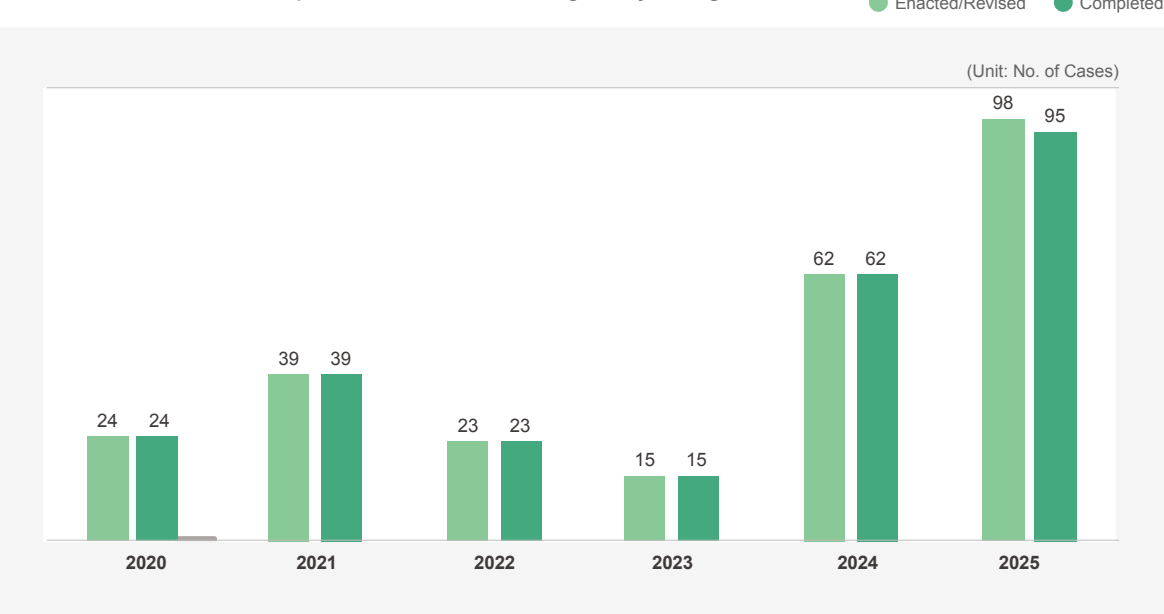


Environmental Management System

Monitoring Environmental Regulations

To proactively manage legal risks and continually elevate our site-level environmental standards, **Hanuwa TotalEnergies Petrochemical** uses an AI-based IT platform to systematically monitor the enactment, amendment, and enforcement trends of environmental regulations. Any changes to relevant statutory frameworks are reviewed monthly and disseminated enterprise-wide, enabling us to preemptively mitigate compliance risks and reinforce operational governance.

■ ■ ■ Status of Review and Response to Environmental Regulatory Changes



■ ■ ■ Key review items — Environmental regulations

- * **Act on Registration and Evaluation of Chemical Substances**
 - Review of impacts from the reorganization of the classification system for substances hazardous to human health, etc.
- * **Installation and Management Notice**
 - Review of impacts on operating standards for manufacturing, use, and storage facilities
- * **Storage Facility Notice**
 - Review of changes to storage facility management standards

Environmental Regulatory Audits & Compliance Monitoring

Hanuwa TotalEnergies Petrochemical conducts regular, systematic audits to ensure compliance with environmental regulations. To drive the continuous optimization of our site-level environmental performance, we execute proactive internal self-audits while consistently participating in periodic, mandatory inspections managed by government authorities.

■ ■ ■ Status of Environmental Regulation Inspections

Category		Inspection Description	Audit Method	Frequency
Integrated Environmental	Air Quality	Integrated Environmental Periodic Inspection	Third-Party Inspection	Every Three Years (Last: 2024)
		Air Pollutant Emissions Reporting	Third-Party Reporting	Monthly
		Air Pollutant Emissions Measurement (Discharge & Control Facilities)	Third-Party Reporting	Monthly / Quarterly / Annually
		Fugitive Emission Facilities Periodic Inspection	Third-Party Inspection	Every Three Years (Last: 2023)
		Fugitive Emission Facilities Measurement	Third-Party Reporting	Annually
	Water Quality	Wastewater Quality Assessment (Raw & Discharged)	Third-Party Reporting	Quarterly
		Cooling Water Blowdown Quality Inspection	Third-Party Reporting	Quarterly
	Waste Management	Waste Disposal Vendor Environmental Evaluation	Self-Audit	Annually
		Facility Complex Odor Measurement	Third-Party Reporting	Annually
	Odor Control	Site Boundary Odor Measurement	Third-Party Reporting	Annually
Marine	Marine	Stormwater Drain Inspection	Self-Audit	Daily
Chemical Substances	Chemical Facilities	Accident Prevention Plan — Implementation & Reporting	Third-Party Reporting	Annually
		Accident Prevention Plan — Inspection	Third-Party Inspection	Every 5 Years
		Hazardous Chemicals On-site Inspection	Self-Audit	Weekly
		Hazardous Chemicals Periodic Inspection	Third-Party Inspection	Annually
		Hazardous Chemicals Technical Safety Diagnosis	Third-Party Inspection	Every 4 Years
		Hazardous Chemicals Commissioning & Installation Inspection	Third-Party Inspection	As Needed (Upon occurrence)
		Hazardous Chemicals Voluntary Compliance Audit	Third-Party Reporting	Annually
		K-REACH Substance Use Survey	Self-Audit	Annually
	Chemical Substances	Chemical Tonnage Monitoring	Self-Audit	Monthly

Minimizing Environmental Impact



Environmental Management System

Environmental Impact Assessment

To promote public health and advance sustainable development within our local community, **Hanwha TotalEnergies Petrochemical** systematically monitors the environmental impacts of our operations in accordance with the Environmental Impact Assessment Act.

We conduct environmental impact surveys annually across all operational areas, including our complex development projects. Key indicators—air quality, marine water quality, and noise—all remain below statutory limits and are managed stably. Furthermore, we focus heavily on minimizing our ecological footprint through the strategic and systematic operation of advanced non-point source pollution reduction facilities. To ensure public credibility, all assessment data is submitted directly to the Ministry of Climate, Energy and Environment (MCEE). This data serves as a reliable baseline for continuous environmental optimization and proactive regulatory compliance.

Current Status of Environmental Impact Assessment

Category	Impact Assessment Item	2023	2024	2025
Complex Development Project	Air Quality	Compliant (Below Statutory Limits)	Compliant (Below Statutory Limits)	Compliant (Below Statutory Limits)
	Noise Level			
	Marine Water Quality			

Capital Expenditures in Environmental Pollution Mitigation

To reduce pollutant emissions and transition to more environmentally friendly processes, **Hanwha TotalEnergies Petrochemical** maintains a continuous program of capital investment in advanced environmental infrastructure. To drive air quality optimization, we have sequentially deployed Selective Catalytic Reduction (SCR) units, scrubbing systems, and Ultra-Low NOx Burners (ULNB) since 2019. This infrastructure effectively controls and mitigates major pollutants, including nitrogen oxides (NOx), sulfur oxides (SOx), and particulate matter (PM). Additionally, to intercept and eliminate facility-level dust emissions, our air pollution control framework incorporates a robust network of baghouses (fabric filters), cyclone separators, and Electrostatic Precipitators (ESP). Since 2015, we have consistently invested in expanding our Regenerative Thermal Oxidizer (RTO) fleet and backup systems to minimize storage tank emissions and odor profiles while ensuring uninterrupted abatement. Moving forward, **Hanwha TotalEnergies Petrochemical** will continue to expand environmentally friendly facilities by applying internal management standards stricter than regulatory requirements, thereby minimizing environmental impacts.

* RTO (Regenerative Thermal Oxidizer): An advanced air pollution control technology that captures and thermally destroys low-concentration Volatile Organic Compounds (VOCs) and hazardous odor compounds.

Air Pollutants, Noise, and Odor Management

Air Pollutant Emissions Management

Recognizing the impacts of air pollutants on human health and ecosystems, **Hanwha TotalEnergies Petrochemical** enforces internal operating standards stricter than regulatory requirements to protect local public health proactively.

We conduct routine measurements across all emission points and operate 64 Tele-Monitoring Systems (TMS) on key assets—including process heaters and gas turbine generators—to monitor pollutant concentrations in real-time, 24 hours a day. An automated alert system immediately notifies personnel if any concentration thresholds are exceeded, enabling swift response and corrective actions to maintain absolute environmental compliance.

Air Pollutant Emissions Management

(Unit: ton)				
Category		2023	2024	2025
Statutory Allocation		7,951	5,310	9,911
Total Actual Emissions		6,804	3,129	2,724
	Nitrogen Oxides (NOx)	6,748	2,997	2,620
	Sulfur Oxides (SOx)	48	123	93
	Particulate Matter (Dust)	8	9	11

Since 2019, **Hanwha TotalEnergies Petrochemical** has actively advanced national air quality goals by entering voluntary MOUs with the Geungang Regional Environmental Office, including the "Voluntary Agreement on the Implementation of Seasonal Particulate Matter Management" and the "Voluntary Agreement on Total Air Pollutant Load Management." Through these continuous initiatives, we achieved an approximately 12.9% reduction compared to the previous year.

* TMS (Tele-monitoring System): A continuous stack emission monitoring system installed at facilities to transmit real-time data on air pollutant discharge (such as NOx, SOx, and particulate matter) directly to environmental authorities.

Minimizing Environmental Impact



Air Pollutants, Noise, and Odor Management

Air Pollutant & Odor Abatement Infrastructure

Hanwha TotalEnergies Petrochemical deploys advanced abatement systems—including flare stacks, Regenerative Thermal Oxidizers (RTO), and Selective Catalytic Reduction (SCR) units—across all facility processes to minimize operational emissions and odors.

Four active flare stacks utilize an integrated monitoring network to track gas discharge volume, chemical composition, and heating values to promote complete combustion. Thermal infrared cameras record and verify combustion performance in real-time. A plant-wide Leak Detection and Repair (LDAR) program monitors approximately 620,000 potential leak points to immediately isolate and repair micro-leaks from diffuse sources.

Abatement capacity was expanded through the installation of Ultra-Low NOx Burners (ULNB) on the xylene heaters at Aromatics Plant 2, alongside the physical expansion of our main RTO infrastructure and dedicated auxiliary backup facilities.

2025 Air Quality & Odor Abatement Capital Expenditures

Business Unit / Division	Capital Investment Initiative
Aromatics/CFU	Installation of Tele-Monitoring Systems (TMS) on process heater stacks
	Replacement of process heaters with Ultra-Low NOx Burners (ULNB)
	Installation of backup auxiliary Regenerative Thermal Oxidizers (RTO) (2 projects total)
	Upgrading of auxiliary steam flow meters for flare system
	Capital investment in vent gas/exhaust treatment facility tie-ins
Polymers	Installation of Solvents Recovery Systems (SRS) for tank emission controls
	Routing of storage tank vents to main Regenerative Thermal Oxidizers (RTO)
	Improvement of dust collection lines within automated warehouse packaging zones
	Installation of advanced fume removal systems
Feedstock/Base Chemicals	Installation of regenerative (heat-storage) media on top of equipment
	Enhancement and installation of backup Regenerative Thermal Oxidizers (RTO) (4 projects total)

Site Boundary Noise & Odor Mitigation

Hanwha TotalEnergies Petrochemical designates noise and odor as key management indicators to create a pleasant living environment for the local community and its employees, and carries out continuous reduction activities.

We conduct quarterly day and night ambient noise monitoring at high-impact facility zones and adjacent boundary areas, maintaining performance consistently below statutory limits. To address noise at the source, we execute routine preventive maintenance on rotating machinery prone to acoustic anomalies and deploy custom physical sound enclosures over high-decibel equipment.

To preserve local community air quality, third-party specialists perform detailed monthly analytical testing on abatement facility exhaust streams. This is integrated with annual composite odor evaluations conducted across six distinct plant boundary locations. Through this multi-layered oversight, **Hanwha TotalEnergies Petrochemical** enforces site-wide operating thresholds that are significantly more stringent than mandatory regulatory baselines.

Soil Quality and Subsurface Contamination Management

In accordance with relevant laws, **Hanwha TotalEnergies Petrochemical** conducts soil contamination surveys and soil remediation, including periodic measurements of soil contamination management facilities at its sites and source tracking.

We commission independent third-party specialists to conduct biennial soil contamination surveys, maintaining a systematic cycle management system where any identified anomaly triggers immediate engineering cleanup followed by formal third-party verification. Reflecting this rigorous oversight, all 80 storage tanks inspected in 2024 and all 88 tanks inspected in 2025 were found compliant. This surveillance is further augmented by precision leak detection testing on targeted sub-surface assets to optimize monitoring efficacy. Since 2024, the company has actively integrated its data into the government-led Soil Contamination Information and History Management System to heighten predictive risk mitigation capabilities. Through systemic preparations for the upcoming 2026 inspection cycle, **Hanwha TotalEnergies Petrochemical** remains committed to maintaining a zero-incident threshold for subsurface environmental risk.

Minimizing Environmental Impact



Water Resources and Water Pollutant Management

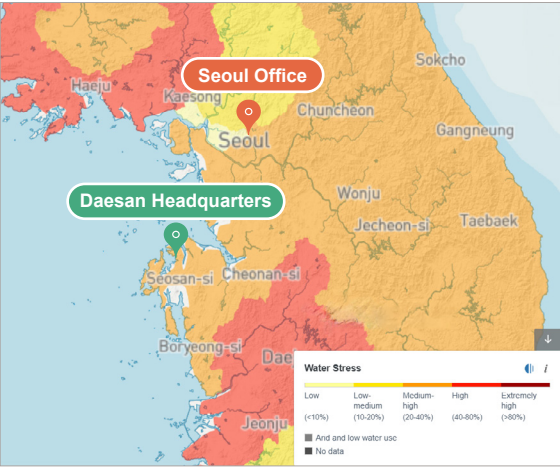
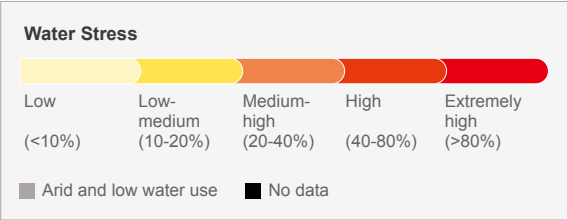
Water Resources Management

Hanwha TotalEnergies Petrochemical withdraws water at our manufacturing facility within the Daesan Industrial Complex in Seosan, South Chungcheong Province, for use as cooling and process water, or for steam generation, in the production of petrochemical products. Our primary water sources are surface water and third-party supplies. Once utilized across our production processes, the water is treated to meet effluent quality standards before being discharged into the adjacent West Sea. Because the Daesan region is classified as a Medium-High water stress area, we monitor the impact of our withdrawal and discharge activities on the local aquatic ecosystem.

We measure and aggregate water withdrawal, discharge, and consumption volumes monthly, utilizing the World Resources Institute (WRI) Aqueduct tool to evaluate water resource risks. In 2025, we conducted a comprehensive assessment including short-term (2030) and mid-to-long-term (2050) outlooks, which confirmed that both our Daesan Headquarters and Seoul Office are projected to face sustained Medium-High water stress levels under a conservative baseline scenario. The scope of this assessment covers our direct operational facilities, and the water quality impact of our effluent is systematically managed and monitored in compliance with the Total Water Pollution Load Management System.

Water Stress Analysis Results

Facility	Current	Future	
	2025	2030	2050
Daesan Headquarters	Medium-high (20~40%)	Medium-high (20~40%)	Medium-high (20~40%)
Seoul Office	Medium-high (20~40%)	Medium-high (20~40%)	Medium-high (20~40%)



Hanwha TotalEnergies Petrochemical recognizes water as a shared resource vital to both local communities and regional ecosystems, and we actively work to minimize our hydrological footprint by reducing water withdrawal and increasing recycling rates. To achieve this, we operate internal process water reuse and circulation systems within processes, ensuring that effluent is treated in compliance with statutory standards before discharge. To proactively mitigate localized water stress, we have strengthened our coordination with government authorities and completed the installation of a seawater desalination facility within the Daesan Coastal Industrial District in 2025. Furthermore, we maintain an immediate-response framework to investigate the root causes of any water-related grievances and implement corrective actions to prevent recurrence.

The company cross-references its water withdrawal and recycling performance data against regional watershed water stress indices and domestic public policies, including the Water Environment Conservation Act and the Total Water Pollution Load Management System. Over the mid-to-long term, we intend to continuously optimize our water withdrawal intensity relative to production volume, steadily reducing our overall dependence on local water resources.

Wastewater Quality Assessment

Hanwha TotalEnergies Petrochemical operates advanced wastewater treatment systems to achieve systematic purification of water pollutants and continuous improvement of effluent quality. Wastewater generated from each process undergoes oil-water separation before being transferred to collection basins, where it is safely treated using an activated sludge process for organic matter removal, followed by advanced treatment stages including sand and activated carbon filtration. At the discharge outfalls, we operate a Water Tele-Monitoring System (TMS) to monitor key compliance indicators, such as Total Organic Carbon (TOC) and Suspended Solids (SS), in real-time, transparently transmitting this data to administrative authorities. Furthermore, we conduct precise quarterly analytical testing for 56 distinct water pollutants, including benzene and phenol, applying internal management standards stricter than statutory limits. Through sustained infrastructure investment and heightened water quality management capabilities, the company remains dedicated to minimizing its overall impact on aquatic ecosystems.

Status of Water Pollutant Management

Category	Statutory Limit	Internal Limit	2025
TOC	50	25	16
SS	80	8	2

(Unit: mg/L)

Minimizing Environmental Impact



Waste Management

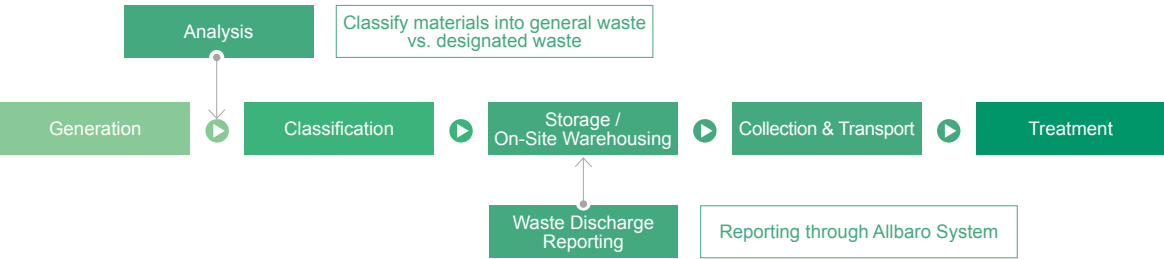
Waste Generation and Environmental Impact

Hanwha TotalEnergies Petrochemical recognizes that our core manufacturing processes—spanning feedstock purification, catalytic reactions, polymerization, synthesis, and product packaging—inevitably generate waste streams. These primarily consist of designated waste, including wastewater treatment sludge, spent catalysts, and waste organic solvents, alongside non-hazardous streams such as byproduct synthetic resins and routine operational waste. Left unmanaged, these materials present distinct environmental risks, including soil and groundwater contamination, localized ecosystem degradation, and potential public health concerns for neighboring communities. To systematically address these issues, we designate waste management as a key management indicator, assessing materials based on total volume, intrinsic toxicity, environmental mobility, and regulatory compliance thresholds. Furthermore, we recognize that waste-related impacts extend beyond our immediate facility boundaries to include upstream supplier processing and downstream product use and disposal. Hanwha TotalEnergies Petrochemical is actively working to mitigate these environmental impacts by introducing circular protocols across our entire value chain.

Waste Recycling and Circularity Strategy

Hanwha TotalEnergies Petrochemical establishes integrated resource circularity frameworks spanning feedstock procurement, logistics, manufacturing, and product distribution to minimize lifecycle environmental footprints. Adhering to pollution prevention as our core operating principle, we systematically control point sources to mitigate waste generation at the source. This includes evaluating alternative raw materials with lower toxicity profiles during the initial input stage and optimizing catalyst regeneration processes to extend operating lifespans. To drive cross-functional waste reduction across the value chain, our upstream initiatives involve sourcing sustainable, waste-based feedstocks for partial integration into our manufacturing processes. Downstream, we develop and supply recycled product lines designed to support our customers' transition toward recycled plastic materials. Through these combined mechanisms, we are scaling the utilization of circular resources from initial material input through end-of-life product disposal. Furthermore, we operate a circular economy system by thoroughly segregating and sorting waste generated at our business sites to improve resource recovery. To reduce waste and increase recycling rates across the company, we establish and manage annual KPIs. In 2025, we exceeded our recycling rate target of 80%, achieving 82%. Over the mid-to-long term, we plan to further increase recycling rates while expanding measures to reduce landfill and incinerated waste.

Waste Management & Disposal Flow



Waste Disposal Contractor Selection Criteria

Hanwha TotalEnergies Petrochemical enforces a management principle requiring all third-party contractors to fully comply with statutory regulations and contractual obligations during the disposal of company-generated waste. During the selection phase for collection, transport, and disposal contractors, we conduct comprehensive evaluations consisting of documentation reviews and on-site physical audits to verify regulatory permits, technical processing capacities, and operational reliability. Qualified contractors are then formally selected based on our internal compliance matrices. Following procurement, we perform scheduled on-site audits to continuously monitor the legality of disposal operations and tracking performance, verifying compliance with legal and contractual obligations across the entire waste lifecycle.

Waste Disposal

Hanwha TotalEnergies Petrochemical enforces waste segregation protocols across all facilities to minimize the environmental footprint of our operational waste on local communities. Specialized partner firms conduct daily audits to verify sorting compliance, which is further supported by mandatory annual waste segregation training programs designed to sustain high organizational awareness among employees and contractors. All waste streams undergo regular analytical testing to ensure accurate classification into general or hazardous (designated) waste, with each category routed to dedicated, regulatory-compliant storage areas. For designated waste, we mandate statutory identification marking and strict logging of accumulation timelines, capping on-site storage at a maximum of 45 days. All waste disposal is executed through licensed third-party contractors and logged in real-time within the government-led Allbaro System. This compliance data is aggregated monthly by waste type and disposal methodology to guide our corporate KPIs and reduction strategies. In 2025, we expanded our circular infrastructure by qualifying new recycling contractors for high-volume streams, including wastewater sludge, spent catalysts, and waste organic solvents. Additionally, capital investment is underway to construct a dedicated holding facility for the secure containment and stabilization of water and wastewater sludge leachate. Targeted for completion in 2026, this infrastructure will safeguard nearby soil quality while increasing the net recovery and recycling rates of our primary sludge streams.

Waste Management*

Category	2023	2024	2025
Waste Recycling Rate (%)	71	72**	82
Waste Generated (ton)	19,527***	21,649	27,691
General Waste	11,190	11,687	11,779
Designated Waste	8,337***	9,962	15,912
Waste Recycled (ton)	13,914	15,670	22,678
General Waste	6,240***	7,097**	7,914
Designated Waste	7,674***	8,573***	14,764

* Entire volume handled by licensed third-party contractors without separate internal treatment
** Data corrected due to a change in the accounting methodology (construction waste has been excluded from total recycled volume)
*** Data corrected due to an input error

Minimizing Environmental Impact



Hazardous Chemical Management

Domestic and Global Chemical Regulatory Compliance

Hanwha TotalEnergies Petrochemical manages the licensing, registration, evaluation, and handling of chemical substances in compliance with applicable statutory regulations. These include the Act on Registration and Evaluation of Chemical Substances (K-REACH), the Chemical Substances Control Act, the Act on the Safety Control of Hazardous Substances, and the Consumer Chemical Products and Biocides Safety Control Act. We periodically monitor regulatory updates to evaluate site-level applicability and ensure continuous compliance across all operations.

On a global scale, we register and manage chemical substances in alignment with REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) regulations across key international markets, including the European Union, the United Kingdom, Türkiye, and Ukraine. Furthermore, we compile and distribute product Safety Data Sheets (SDS) tailored to country-specific regulatory requirements, and provide certificates verifying the presence or absence of Substances of Very High Concern (SVHC) within our products to support our customers' supply chain diligence.

Operation of Chemical Review IT System

To ensure all chemicals manufactured or used on-site are handled safely, **Hanwha TotalEnergies Petrochemical** operates a specialized review platform called CheMiR (Chemical Management including REACH). This system maintains an up-to-date database of domestic and international chemical regulations. By cross-referencing chemical profiles with specific job descriptions, we can precisely map worker exposure risks, mitigate operational hazards, and prevent industrial accidents. Building on this framework, the company plans to establish a Chemical Life Cycle IT System in 2026. This platform will link our Bill of Materials (BOM) with a dedicated Bill of Substances (BOS), allowing us to digitally track the regulatory and environmental footprint of every chemical from initial procurement through final product sales.

Hazardous Chemical Handling and Competency Enhancement

We maintain operational standards across the entire chemical lifecycle—covering identification, labeling, storage, handling, and transport—to minimize risks to safety, health, and the environment. Hazardous substances are classified and managed according to relevant standards, and we ensure that Material Safety Data Sheets (MSDS) are readily accessible at worksites so personnel can verify hazard information and handling precautions for each substance. To continuously strengthen on-site response capabilities, we conduct regular training for both employees and contractors. These sessions focus on handling hazardous substances, utilizing personal protective equipment (PPE), and executing emergency response procedures.

Hazardous Chemical Accident Prevention

Hanwha TotalEnergies Petrochemical enforces internal operating standards that are stricter than legal requirements to prevent chemical accidents. To ensure readiness for potential leaks, we establish chemical leak scenarios in advance, rapid notification protocols, initial response manuals, and regular training drills. Additionally, we designate and manage emergency evacuation muster points across our facilities to protect all personnel. To verify that our entire system functions properly, we conduct weekly tests of our emergency broadcasting, SMS, and voice alert communication channels.

2025 Hazardous Chemical Accident Prevention and Capital Investment Initiatives

Category	Initiative
Operations	Paving of designated hazardous chemical handling zones
	Infrastructure upgrades for hazardous chemical handling areas
	Gas detector installation
Polymers Production	New and additional installation of gas detectors around hazardous chemical handling facilities
	Construction of a catalyst storage facility
Aromatics Plant 1	New and additional installation of gas detectors at hazardous chemical handling facilities
Feedstock	New and additional installation of gas detectors in compliance with Chemical Substances Control Act

Hazardous Chemical Waste Disposal

Hanwha TotalEnergies Petrochemical operates a comprehensive management framework aligned with local regulations and international conventions to minimize environmental and safety risks throughout the waste disposal process. Designated waste is lawfully treated through domestic specialized treatment contractors, to whom we provide hazard information to ensure safe treatment. In rare cases where unique product characteristics require overseas waste export, we strictly adhere to the procedures and standards of the Basel Convention to verify legality and safety before transport. Furthermore, high-risk waste streams featuring hazardous properties—such as pyrophoric (spontaneously combustible) or water-reactive characteristics—undergo necessary stabilization and pre-treatment protocols prior to final disposal.

Minimizing Environmental Impact



Hazardous Chemical Management

Hazardous Chemical Reduction Initiatives

Based on precise monitoring of hazardous and highly toxic chemicals, **Hanwha TotalEnergies Petrochemical** drives company-wide risk reduction initiatives, focusing on substituting hazardous materials with non-hazardous alternatives and reducing the concentration of toxic components.

■■■■ Hazardous Chemical Reduction Activities

Year	Chemical Substance	Details	Application
2024	Hydrazine hydrate	Substituted with non-hazardous chemical	Cooling water biocide and corrosion inhibitor
2025	Dinoseb	Substituted with non-hazardous chemical	Polymerization inhibitor
2025	Sodium nitrite	Reduced to non-hazardous concentration levels	Antioxidant
2026~	Cyclohexylamine	To be substituted with a non-hazardous chemical (Planned)	Corrosion inhibitor
2027~	Monoethanolamine	To be substituted with a non-hazardous chemical (Planned)	Corrosion inhibitor

To eliminate toxic chemical emissions at the source, **Hanwha TotalEnergies Petrochemical** signed the Agreement on Reducing Hazardous Chemical Concentrations in the Daesan Area in 2022. This agreement established a close, collaborative framework combining the efforts of the Ministry of Environment, Seosan City, local industries, and civil society groups. By developing and executing multi-faceted reduction strategies, we are fully committed to providing local residents with a clean, healthy, and safe atmospheric environment.

■■■■ Hazardous Chemical Emissions Status

(Unit: ton)

Chemical Substance	2023	2024	2025
Benzene	4.8	4.6	4.6
p-Xylene	13.4	12.3	12.0
Toluene	4.2	4.2	4.0
Styrene	4.2	3.5	3.5
1,3-Butadiene	1.0	1.1	1.2

Customer Health and Safety Communication

Hanwha TotalEnergies Petrochemical ensures safe chemical use across the entire product lifecycle by providing transparent safety data.

In compliance with domestic and international regulations, we transparently disclose hazard and risk information through Material Safety Data Sheets (MSDS). This documentation guides customers through safe handling, storage, transportation, and disposal protocols. To support our customers' safety management, we provide clear instructions on product-specific hazards, emergency first-aid measures, handling precautions, exposure controls, and personal protective equipment (PPE) requirements.

Additionally, we conduct safety and hazard evaluations during new product development and secure necessary safety certifications to reinforce regulatory compliance and reliability.

We operate a customer complaint (Claim/Complaint/VOC) system to systematically address customer inquiries and grievances. Through our sales portal, customers can report issues regarding quality, logistics, technical support, safety, or environmental impacts. When an issue is logged, we follow internal procedures to conduct root-cause analyses, dispatch on-site technical support, or execute product recalls as needed. All received issues are used to establish corrective actions that drive product and service improvements. Furthermore, we continuously monitor recurring issues and key improvement targets to implement preventative measures, strengthening long-term customer satisfaction and trust.

■■■■ Customer Complaint Resolution Process



SOCIAL



**Workplace Health
and Safety**



**Human Rights and
Talent Management**



**Sustainable
Supply Chain**



**Strategic Social
Contribution**

Workplace Health and Safety



Safety and Health Management Framework

Hanwha TotalEnergies Petrochemical prioritizes the safety of all stakeholders, including our employees and contractors. Guided by our core vision—to be a trusted company creating opportunities through Safety, Health, and Environment—we continuously refine our governance systems.

To achieve our goal of zero safety incidents, our corporate safety and health strategies and execution plans are updated annually with the approval of the Board of Directors. Furthermore, our organizational structure employs a line-staff model featuring dedicated safety teams, supported by designated safety managers within each operational department to strengthen on-site risk management.

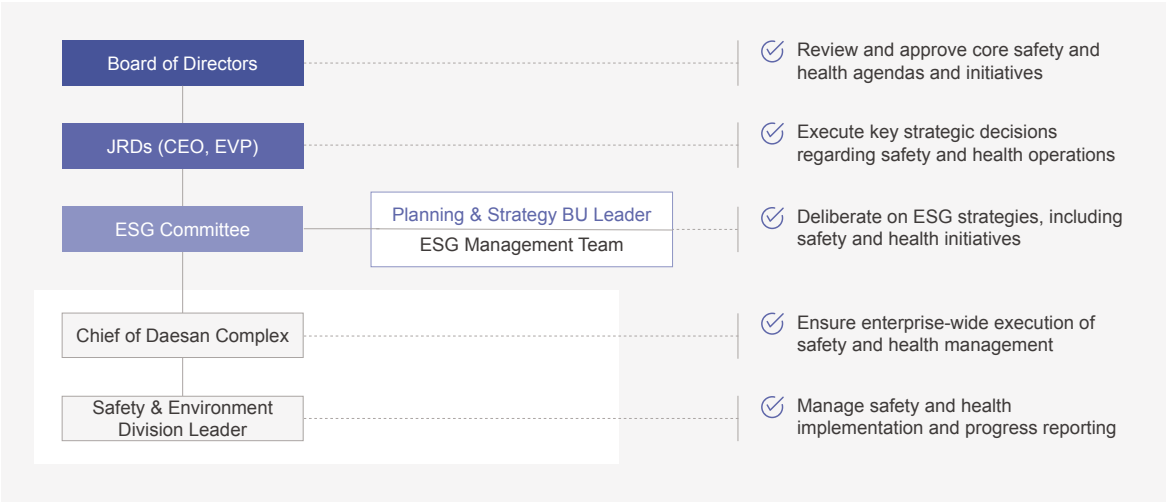
To steer high-level decision-making, we operate the Safety and Health Management Committee, which is chaired by the JRDs and convened semi-annually with divisional executives and safety managers. This committee serves as our central control tower to review and vote on safety targets, management policies, budgets, and staffing allocations, while ensuring strict compliance with legal frameworks such as the Serious Accidents Punishment Act.

Complementing this executive governance, the Occupational Safety and Health Committee meets quarterly to focus on field-level accident prevention and practical hazard mitigation for frontline workers. All committee decisions are shared transparently with the entire workforce, and their implementation status is continuously monitored to ensure the efficacy of our safety management initiatives.

Company-Wide Safety and Health Council

Governance Body	Oversight	Frequency	Composition	Key Deliberations & Agendas	2025 Performance
Safety and Health Management Committee	JRDs	Semi-annually	Executive Management, Plant Managers, and Division/Department Heads	- Monitoring compliance with Serious Accidents Punishment Act - Deliberating on safety and health staffing and budget allocations	2 meetings
Occupational Safety and Health Committee	Management representative and Labor representative	Quarterly	Occupational Safety and Health Committee Members (Management side, Labor side)	Reviewing safety and health management plans and corporate regulation revisions; Approving safety training and health promotion initiatives; Deliberating on employee-submitted agendas	4 meetings
Partner Safety and Health Council	Principal Contractor Entity	Monthly	Contractors' Site Representatives	Coordinating shift start times and cross-operational communication; Establishing emergency evacuation procedures for hazardous events; Reviewing workplace risk assessment execution	12 meetings
Plant Safe Operation Meeting	Head of Daesan Headquarters	Quarterly	Daesan Headquarters Workforce	- Reviewing SHE performance (KPIs and key safety initiatives) - Sharing updates and addressing active issues regarding safe plant operations	4 meetings

Safety and Health Management Governance Structure



Workplace Health and Safety



Safety and Health Management Strategic Framework

To minimize direct and indirect negative safety and health impacts resulting from our business operations, **Hanwha TotalEnergies Petrochemical** has established a comprehensive Safety Health Environment Quality Charter and Safety & Health Management Policy. Our safety and health management system is structured around the international standard ISO 45001 and utilizes the Plan-Do-Check-Act (PDCA) cycle to consistently advance our operational safety performance. While strict adherence to domestic regulations—such as the Occupational Safety and Health Act—serves as our baseline principle, we proactively pursue voluntary safety and health initiatives that exceed minimum legal mandates. With the ultimate objective of achieving zero serious accidents, we focus our corporate resources on four strategic directions to cultivate a safe and healthy workplace environment. These priorities comprise guaranteeing compliance with laws and international standards, driving accident prevention and health promotion, fostering mutual growth with partners, and strengthening emergency response capabilities. Through the execution of these strategic pillars, we remain dedicated to building a resilient, risk-mitigated operational environment for all members of our workforce.

Safety and Health Management Strategy, Target, and Performance

Goal	Strategic Initiatives	Mid-Term Target (~2030)	2025 Performance
Workplace Safety and Health	Regulatory compliance and adherence to international standards	Maintain top-tier international Occupational Health and Safety Management System certifications	Maintained ISO 45001 certification and the Process Safety Management (PSM) 'P' Grade rating
		Enhance prevention of major industrial accidents and risk management	Conducted regular Process Hazard Analyses (PHA) across 9 plant units Conducted regular Job Safety Analyses (JSA) targeting 35 departments
	Accident prevention and health promotion	Reinforce on-site safety initiatives	Conducted internal audits for 2025, Executed 12 "Safety Inspection Day" (SCT) initiatives
		Enhance safety leadership capabilities	Achieved a 100% completion rate for legally mandated training, including supervisor training courses
		Strengthen capabilities for workplace health promotion and occupational disease prevention	Conducted workplace environmental monitoring 2 times
	Emergency response	Advance integrated emergency response systems	Conducted company-wide emergency response drills 2 times

*Target Criterion: 100% completion rate for all eligible personnel across three legally mandated training courses (Online Regular Safety Training for Production/Office Staff, Online Training for New Workers, and Supervisor Training Courses).

Key Identified Impacts, Risks, and Opportunities

Impacts, Risks, and Opportunities(IROs)	
Impacts	Contribution to higher safety standards across society by cultivating a robust workplace safety culture that safeguards employee health and prevents occupational accidents.
Risks	Triggering of critical production deficits due to operational shutdowns following serious accidents, while simultaneously eroding stakeholder trust.
Opportunities	Reduction of safety-related liabilities, incident penalties, and operational expenses by maintaining a secure working environment and actively promoting a proactive safety culture.

Safety and Health Management System

Hanwha TotalEnergies Petrochemical has established a safety and health management system based on international standards. We continuously strengthen the effectiveness of our Process Safety Management (PSM) framework while auditing and advancing our safety and health management practices through world-class safety rating evaluations.

ISO 45001 Certification

By acquiring integrated certifications for ISO 45001 and ISO 9001 from the International Organization for Standardization, we have established a global-standard safety, health, and quality management system.

International Safety Rating System (ISRS)

In the 2021 International Safety Rating System (ISRS) evaluation, we achieved Level 8, recognizing our capability to continuously maintain and advance our safety and health systems. To date, no company in the refining and petrochemical sector has achieved Level 9 or Level 10; consequently, Level 8 is currently regarded as the highest rating achieved in the sector.

Process Safety Management (PSM/SMS)

We proved the excellence of our process safety management framework by securing a 'P' Grade (the highest possible rating) in the 2025 Process Safety Management system implementation status evaluation, while consistently maintaining an 'A' Grade (the highest possible rating) for our Safety Improvement Plans.

Safety and Health Management System Certification Status

Category		PSM	SMS	ISO 45001	ISRS
Certification Overview	Standard	Occupational Safety and Health Act	High-Pressure Gas Safety Management Act	International Organization for Standardization	International Safety Rating System
	Cycle	1~ 4 Years	1~5 Years	3 Years	3~5 Years
Acquisition Status	Site	Daesan Headquarters	Daesan Headquarters	Daesan Headquarters	Daesan Headquarters
	Grade / Rating	P Grade (P/S/M+/M-)	A Grade (A/B/C/D)	Pass (Pass/Fail)	Level 8 (1~10)
	Validity Period	2025.07 ~ 2029.06	2021.12 ~ 2026.12	2024.02 ~ 2027.01	-
Remarks		Evaluation in 2025	Evaluation in 2026	Surveillance Audit in 2026	2021 8th Edition

*This system applies to all personnel working within the Daesan Headquarters, encompassing directly employed executives and employees, corporate visitors and site entrants, subcontractor workers, and individuals providing labor for remuneration.

Workplace Health and Safety



Safety and Health Management System

Strengthening the Safety Competence Management System

Hanwha TotalEnergies Petrochemical establishes and operates dedicated systems to systematically enhance the safety competence of all workforce members, continuously aligning with shifting safety management trends and regulatory environments. Shifting from static safety training to an integrated competence model, we have established a lifecycle management framework that links safety capabilities directly to hiring, promotions, and performance indicators (KPIs). We derived core competencies based on the specific characteristics of each department and job level, developed assessment tools to diagnose current capability levels, and established targeted safety competence development strategies based on the results. Through these initiatives, we continue to strengthen our capabilities as a global leader in human factors management.

Intelligent and Systematic System Management

Hanwha TotalEnergies Petrochemical integrates digital technologies to preemptively respond to evolving safety and environmental regulations. In 2025, the company established a dedicated Regulatory Amendment Review System. By enabling systematic comparison and review between existing and newly enacted legislation, this system elevates our regulatory management standards. Furthermore, we leverage AI technology to analyze safety and environmental regulatory amendments and evaluate their direct operational impact on our business. To maximize operational efficiency in chemical substance management, we are building a company-wide integrated CHEmical Safety System (CHESS). As part of this integration, Material Safety Data Sheet (MSDS) configurations currently managed within our existing Safety, Health, and Environment (SHE) system will be migrated directly into the work permit module of the new platform. This transition will empower on-site operators to instantly verify chemical hazards directly from the field during operations, thereby continuously improving the reliability of our chemical substance management.

Preventing Serious Accidents and Managing Risks

Targeted Risk Factor Management

Hanwha TotalEnergies Petrochemical operates a structured Serious Accident Prevention Program dedicated to identifying and mitigating critical risk factors. Each business unit systematically maps out potential serious hazards, coordinates mitigation strategies, and drives corporate awareness regarding high-level risk controls. These critical risks are managed via the Plant Manager's PCM(Plant Competitiveness Meeting) forum. By reviewing management plans and promoting mutual benchmarking, the platform ensures a continuous upward trajectory for company-wide safety performance.

Occupational Safety and Health Risk Assessment

To safeguard the safety and health of our workforce, **Hanwha TotalEnergies Petrochemical** mandates comprehensive risk assessments to identify and eliminate hazards arising from the installation or modification of production processes as well as daily operational activities. These risk assessments are categorized into periodic and ad-hoc evaluations, with process risk assessments conducted on a four-year cycle and job risk assessments performed annually. In 2025, the periodic process risk assessment was conducted across nine unit plants utilizing the HAZOP (Hazard and Operability) methodology, identifying 973 new hazard scenarios, and generating corrective recommendations spanning equipment upgrades, administrative controls, and drawing revisions. Concurrently, the periodic job risk assessment was executed across 35 departments using KRAS (Korea Risk Assessment System) and JSA (Job Safety Analysis) frameworks. A total of 1,962 assessments were conducted, resulting in 81 corrective recommendations, which were addressed through elimination and substitution, administrative controls, and engineering controls. All resulting recommendations are transferred to the Risk Register, where action plans are established and managed. Individual departments directly oversee the implementation of these measures, ensuring decentralized accountability and a continuous upward trajectory in our safety management standards.

Risk Assessment Process



Workplace Health and Safety



Strengthening Field-Centered Safety Activities

Occupational Safety and Health Communication

Hanwha TotalEnergies Petrochemical encourages the establishment of autonomous and self-driven safety activities by formulating and executing Voluntary Occupational Safety and Health Management Plans designed to achieve department-specific safety goals. We are expanding manager-led safety leadership initiatives to perform field-centric, practical safety management activities, thereby building a shared understanding of safety with on-site employees. Based on the results of safety culture diagnostics conducted for each business unit, we operate individual briefing sessions to foster two-way communication and develop strategies for enhancing our safety culture. To cultivate a safety culture across our worksites, we operate various on-site safety management and coaching activities enterprise-wide, such as Safety Core Time and Remind the Safety, while line and staff organizations jointly perform field safety management activities during our monthly Safety Inspection Day. Furthermore, we contribute to elevating our safety culture by running regular safety campaigns and the Safety Expert Course training program, as well as reviewing and sharing case studies of domestic and international accidents with all employees.

Field-Centric Safety Internal Audits

Hanwha TotalEnergies Petrochemical conducts annual internal audits to embed autonomous safety and health management within line organizations and strengthen their execution capabilities. These audits verify the implementation status of our safety and health management systems alongside process safety management frameworks. To ensure evaluation reliability, the process combines assessments of department-level field management items with interviews conducted by external personnel. The audited field management criteria include safety leadership programs, the lateral integration of accident investigation findings, and the operation of Safety and Environment Day. Through these internal audits, we continuously elevate the execution standards of autonomous safety management across all field operations.

Safety and Health Training

Hanwha TotalEnergies Petrochemical continuously operates and refines training programs to strengthen the safety and health capabilities of all executives and employees. We systematically structure and run our own training programs, while actively identifying employee educational needs through periodic surveys to consistently improve our curriculum.



* Training mandated for high-hazard operations (e.g., high-pressure vessel work; metal welding/cutting using acetylene or gas-manifold systems; confined space welding; and the manufacturing or handling of explosive, water-reactive, self-reactive, self-heating, pyrophoric, or flammable materials).

Supervisor Safety Leadership Program

Supervisor Safety Leadership Training

In 2025, tailored safety leadership programs were implemented to strengthen the risk management capabilities and leadership of frontline supervisors, from team leaders to foremen. Rolled out in phases from March to July, the training was customized for three distinct audiences: appointed managers, non-appointed supervisors, and contractor partners. This initiative successfully certified 153 appointed managers, 266 non-appointed employees, and 58 contractor personnel under statutory supervisor safety and health requirements. The curriculum was built directly around internal corporate systems, data, and real-world operational case studies. To maximize practical impact, the course for appointed managers dedicated 6 hours of its total 16-hour duration to company-specific modules. The practical coursework focused on cultivating a safety culture, hazard mitigation, field supervisory skills, safety mentorship, and leadership execution techniques, utilizing interactive workshops to ensure direct workplace applicability. Following the program, a structured post-training evaluation process was established to measure field implementation. This began with a comprehensive workplace application assessment in July, followed by interviews and the benchmarking of best practices through August. In September, these success stories were shared enterprise-wide to reinforce safety ownership and inspire voluntary participation across the organization.

Safety Onboarding for Newly Appointed Leaders

In 2025, we implemented a dedicated Safety Onboarding program to instill strong safety leadership habits early among newly appointed managers. The program targeted incoming leaders across all organizational tiers—including executives, team leaders, production managers, foremen, and maintenance part leaders—and was delivered through two 3-hour classroom sessions in July and December. The curriculum was designed to help incoming managers quickly align with our established safety leadership expectations and bridge the gap between theory and field execution. Key areas of focus included the business case for proactive safety leadership, the core competencies of high-performing safety leaders, corporate safety management frameworks paired with practical exercises, and the direct link between leadership behaviors and workplace safety culture. This onboarding initiative successfully accelerated the adoption of a safety-first mindset among new leaders, deepened their proficiency with our safety systems, and reinforced high safety standards across our operations.

Safety Competency Training for Early-Career Professionals

In 2025, we rolled out a targeted safety competency program for 119 early-career technical professionals in their first and second years with the company (2023–2024 hires). Built around experiential, hands-on learning, the training focused on sharpening real-time hazard recognition, risk assessment capabilities, and safety sensitivity. This initiative successfully strengthened foundational safety skill sets among our newer workforce, driving higher standards of autonomous safety management across our operations.

Workplace Health and Safety



Strengthen capabilities for workplace health promotion and occupational disease prevention

Health and Wellness Management

To ensure a safe and supportive working environment, **Hanwha TotalEnergies Petrochemical** goes beyond standard regulatory compliance to expand voluntary health and wellness initiatives across our workforce. We maintain a rigorous schedule of statutory health and safety evaluations, including semi-annual workplace environmental monitoring, annual medical exams (general, comprehensive, and occupational), triennial musculoskeletal hazard assessments, and annual screenings for cardiovascular risk and job-related stress. Additionally, regular equipment integrity inspections are conducted to protect the personnel operating our facilities. We continually strengthen our exposure management frameworks to safeguard both direct employees and contractor partners from environmental hazards. Our corporate wellness portfolio features personalized fitness consultations, clinical health counseling, smoking cessation and body fat reduction programs, and subsidized influenza vaccinations. We further enhance our safety net through enterprise-wide CPR training and comprehensive mental health resources. All workplace environmental monitoring results are shared openly with our workforce. Through semi-annual briefings, we collaborate closely with labor union representatives to integrate direct field feedback into our continuous facility improvement plans.

■■■ Employees Occupational Disease Prevention and Health Promotion Programs

Key Activities	Description	2025 Performance
Workplace Environmental Monitoring	Assessing workplace exposure to hazardous agents, including noise, particulates, and chemical substances	Conducted semi-annually (April and October) Results confirmed all exposure levels remained below regulatory limits
Employee Health Screenings (Comprehensive, General, Occupational)	Supporting preventative healthcare and continuous health management for employees	Achieved 100% participation among eligible personnel Comprehensive: 1,239 / General: 611 / Occupational: 2,229 employees
Musculoskeletal Hazard Investigation	Identifying and mitigating workplace strain to prevent musculoskeletal disorders (MSDs)	Conducted on a 3-year cycle 2025 evaluation completed; next periodic assessment scheduled for 2028 - Results: 0 musculoskeletal burden tasks identified across 181 unit operations
Cerebro-cardiovascular Screening & Stress Evaluations	- Evaluating cardiovascular health risks - Assessing workplace stress levels and contributing factors	Completed clinical risk assessments and stress evaluations for 1,850 employees
On-Site Wellness Clinic & Medical Consultations*	- Tailored fitness prescriptions and exercise plans - Clinical follow-ups for individuals with abnormal screening results - Subsidized influenza vaccinations	- Personalized fitness consultations: 1,385 participants (cumulative) - Wellness clinic utilization and medical consultations: 2,514 cases (cumulative)
Mental Health	- Voluntary psychological counseling services - Stress relief initiatives, including aroma healing therapy	70 employees participated in workplace stress-mitigation programs
Events and Campaigns	- Target programs for smoking cessation and body fat reduction - Corporate influenza vaccination drives	- Smoking cessation: 18 participants - Body fat reduction: 280 participants - Flu vaccinations: 670 participants
CPR Training	Cardiopulmonary Resuscitation (CPR) training	450 employees received CPR training

* Employees can freely utilize the on-site wellness clinic during working hours. To enhance accessibility, we offer mobile and email-based booking systems, allowing convenient and accessible medical consultations

■■■ Industrial Hygiene & Workplace Environmental Monitoring Process

Monitored Agents

Chemical hazards (including organic compounds), physical agents (noise), dust, etc. — covering handling departments and contractors

Assessment Process

Preliminary Investigation

Field Sampling & Monitoring

Laboratory Analysis

Report Submission

Follow-Up Management

- Map and identify specific hazardous agents across each unit operation.
- Define sampling parameters and finalize the comprehensive monitoring schedule.

- Conduct on-site sampling across all target processes.
- Inspect and evaluate real-time workplace environmental conditions.

- Chain-of-custody transfer of field samples.
- Analyze samples by analysis method.

- Submit the final compliance report within 30 days of completing field sample collection.

- Collaborate with cross-functional teams to develop corrective action plans for facility improvements.
- Host formal briefing sessions to communicate monitoring insights and findings.

Workplace Health and Safety

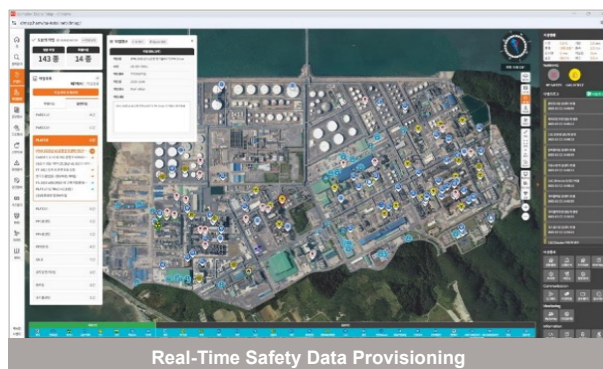
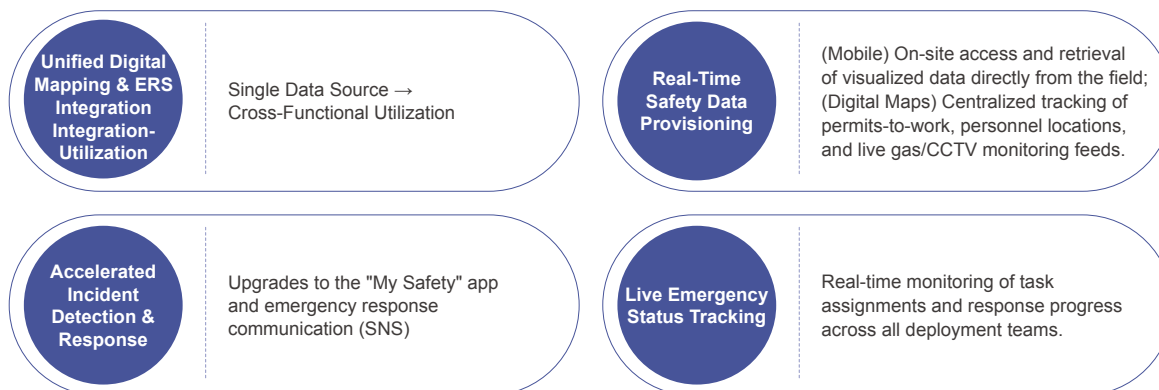


Establishing Emergency Response Frameworks and System Optimization

Emergency Response Infrastructure & Operations

To ensure a rapid and precise response to critical incidents, **Hanwha TotalEnergies Petrochemical** conducts site-wide risk assessments to identify potential accident scenarios and establish robust emergency response protocols. The company has mapped out approximately 700 potential site-specific emergency scenarios, which are reviewed and updated annually to maintain operational readiness. We maintain a 24/7 readiness posture across our expansive 3.3-million-square-meter manufacturing complex using an in-house, location-based mapping system. This centralized platform integrates fixed and mobile CCTV feeds with real-time mobile gas monitoring infrastructure, enabling comprehensive, round-the-clock situational awareness and deployment capabilities.

Digital Integration-Driven Emergency Response Upgrades



Emergency Response Drills

To reinforce crisis readiness, **Hanwha TotalEnergies Petrochemical** conducts semi-annual, company-wide emergency response drills involving employees and contractor partners. Our training framework includes regularly scheduled, specialized exercises such as executive crisis communication drills, company-wide mobile fire brigade drills, scenario-specific tactical maneuvers, and hands-on live-fire suppression training. In 2025, we conducted two comprehensive emergency drills involving over 1,000 employees and contractors to prepare for major safety and environmental incidents, such as fires, explosions, releases, and severe industrial accidents. In the first half of the year, we participated in the Ready Korea joint disaster response exercise to strengthen crisis capabilities. This exercise evaluated collaborative response capabilities across 35 organizations and 550 personnel, including the Ministry of the Interior and Safety, the Ministry of Environment, the Ministry of Employment and Labor, the Ministry of Health and Welfare, and local governments.

Enterprise Emergency Response Drills (Semi-Annual)

- H1 (June 20): ADLPE Hydrocarbon Leak, Fire, and Marine Spill Incident Response
 - H2 (July 31): Aromatics #1 Parex Feed Surge Drum Lower Flange Leak and Fire Response
 - Integrated roles for the newly established Rapid Response Team
 - Applied system upgrades designed to enhance emergency response communications
- ※ Post-Drill Feedback:
- Establish a "Plan B" contingency framework for system failure scenarios
 - Clarify Rapid Response Team R&Rs and hand-off procedures with the Crisis Management Cell (CMC)
 - Reinforce on-site responder safety protocols and individual team mission readiness

Company-Wide Emergency Response Scenario Re-Evaluation (from 2026)

- Conduct damage and impact zone analyses using PHAST simulation software to enhance worst-case and alternative scenario response strategies



Human Rights and Talent Management



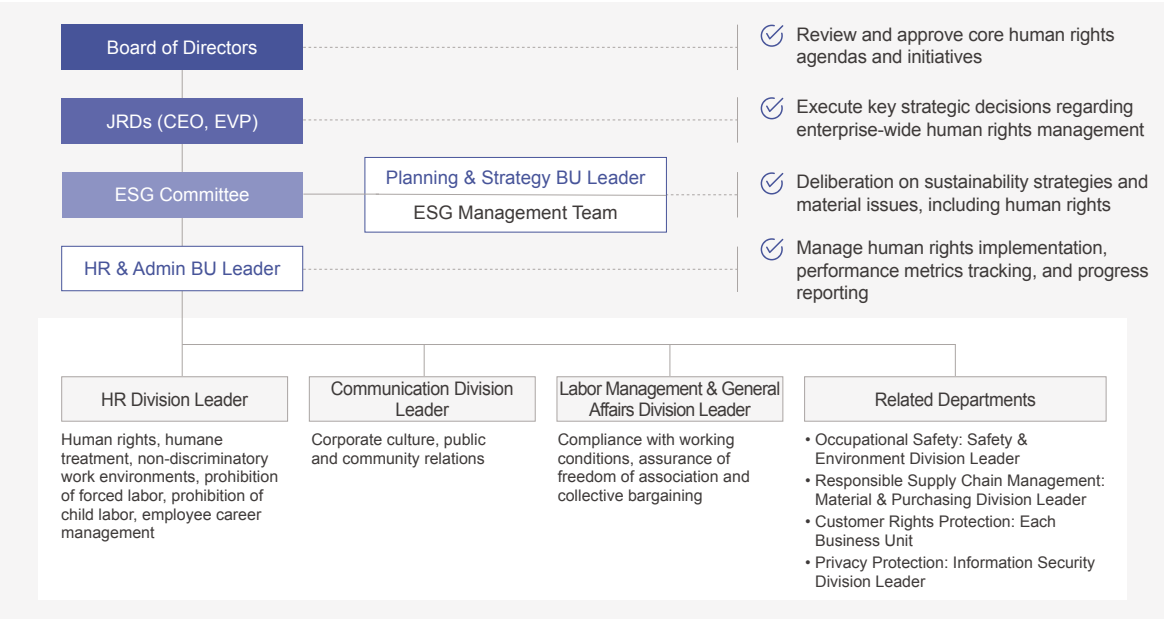
Human Rights and Talent Management Framework

Under the mission of "Chemistry for Human Life," **Hanwha TotalEnergies Petrochemical** supports internationally recognized human rights frameworks, including the UN Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights (UNGPs), and the International Labour Organization (ILO) Core Conventions. Based on these principles, the company has established its human rights policies and ensures strict compliance with applicable laws.

We maintain a structured governance framework from leadership to operational teams to drive human rights initiatives. The Board of Directors reviews and approves core human rights agendas, while the Joint Representative Directors (JRDs) drive executive decision-making. The ESG Committee deliberates on sustainability strategies and material issues, including human rights. Meanwhile, the Chief Corporate Support Officer oversees the implementation of human rights policies, monitors performance, and reports progress. At the operational level, Human Resources, Communications, Support, and related divisions execute specific human rights initiatives across their respective business areas.

Through this governance structure, the company fosters a culture of respect by conducting statutory annual training for all employees, including sexual harassment prevention, workplace bullying prevention, and disability awareness. Additionally, we continuously enhance our human rights management by gathering feedback through labor-management councils and dedicated grievance channels.

Human Rights and Talent Management Governance Structure



Human Rights Management Strategic Framework

Hanwha TotalEnergies Petrochemical has established a comprehensive human rights policy to practice social responsibility and respect for human rights across all business activities and corporate relationships. This framework embeds core human rights values directly into strategic management and operational workflows, continually elevating the corporate management architecture to align with global benchmarks.

As specific operational standards, the company has implemented 11 core policies across its business operations, including non-discrimination, the protection of labor rights, and workplace safety compliance. The full text of this policy, which protects all stakeholders, including direct employees and business partners, is published in the ESG Policy Book on the corporate website.

To maximize the efficacy of these policies, regular human rights training is conducted for all employees, and potential human rights risks are proactively managed through internal communication channels, such as formal grievance mechanisms. We will continuously monitor and refine our implementation performance to further advance our commitment to human rights management.

Human Rights Management Strategy, Target, and Performance

Goal	Strategic Initiatives	Mid-Term Target (~2030)	2025 Performance
Human Rights Management	Respect for human rights	Eliminate human rights-related legal violations (Child labor, forced labor, human trafficking, working conditions, etc.)	0 Cases
		Cultivate employee human rights awareness	All employees have completed discrimination and harassment prevention training
	Advancement of the human rights management system	Enhance human rights impact assessment processes	Conducted simplified human rights impact assessments

Key Identified Impacts, Risks, and Opportunities

Impacts, Risks, and Opportunities(IROs)	
Impacts	Legal risks, corporate reputational damage, and supply chain disruptions resulting from human rights violations, including forced labor, child labor, human trafficking, and discrimination. Respect for employees' private lives and protection of their rights through a family-friendly work environment, including parental leave and expanded flexible work arrangements.
Risks	Non-compliance fines, litigation expenses, and structural reputational fallout triggered by internal discrimination or human rights violations.
Opportunities	Strengthening of corporate reputation through strict enforcement of dedicated anti-discrimination and human rights policies to elevate brand value, reduce recruitment costs, and secure top-tier talent.

Human Rights and Talent Management



Human Rights Risk Management

Employee Human Rights Training

Hanwha TotalEnergies Petrochemical actively conducts training programs to prevent human rights violations—including sexual harassment, workplace bullying, and verbal abuse—in order to cultivate a healthy and safe working environment. The company mandates regular training at least once a year for all employees, supplementing these sessions with required onboarding modules for new hires and accessible online courses to maximize organizational engagement. To maintain relevance, instructional content undergoes continuous updates that incorporate shifting legal frameworks, evolving social standards, and direct employee feedback.

Human Rights Training Completion Rate in 2025

100%



Human Rights Impact Assessments

Hanwha TotalEnergies Petrochemical conducts human rights impact assessments across the workforce to proactively identify potential risks and mitigate adverse impacts.

A simplified assessment conducted in December 2025, with 360 participants and a participation rate of 19.4%, achieved a 95% positive response rate. The company took immediate corrective action to address the identified development areas regarding corporate culture and working conditions. To ensure clear strategic alignment, the newly established human rights policy was published across all corporate channels.

Additionally, the company enhanced the visibility and accessibility of its grievance mechanisms—including internal reporting channels and the corporate website—enabling rapid, effective remediation for potential violations. Establishing regular assessment cycles and upgrading risk management protocols will eliminate blind spots, while continuous monitoring based on diagnostic data will solidify a trusted, rights-respecting corporate foundation for all stakeholders.

Grievance Handling Mechanisms

Human Rights Violation Reporting Channels

Hanwha TotalEnergies Petrochemical operates a comprehensive intake system to actively capture employee feedback, alongside a dedicated human rights hotline for rapid response to incidents of workplace bullying, sexual harassment, or discrimination. The company protects the identity of reporters and maintains the confidentiality of report contents. Corporate protocols prohibit any form of retaliation or adverse personnel action against individuals filing reports. This protective framework is formally codified within our Labor-Management Council Operating Standards and Employment Regulations to ensure structural compliance and accountability.

Human Rights Grievance Resolution Process



► Informant

Internal and External Stakeholders
(Employees, Business Partners, Customers, Local Communities, Etc.)

► Reporting Channel

Company Website	https://www.htpchem.com/sustainability/code_of_conduct
Email	auditcom.htc@htpchem.com
Phone	+82 2 3415 9266 (or 9262)
FAX	+82 2 3415 9270
Postal Mail	Management Audit Team, Hanwha TotalEnergies Petrochemical 13th Floor, INNO88 TOWER, 88 Yulgok-ro, Jongno-gu, Seoul, 03131, Republic of Korea
Internal Channel	Company Intranet → Gochung Hanmadang (The Employee Grievance Forum)

► Scope of Reporting

Human rights violations or human rights risks occurring within or outside the company.
(Incidents of sexual harassment, verbal abuse, workplace discrimination, bullying, child labor, forced labor, human trafficking, etc.)

► Measures to Protect the Informant

- Guaranteed Anonymity
- Identity details and investigation records are managed under rigorous security protocols. No information is disclosed without the explicit consent of the informant.
- The company enforces strict anti-retaliation policies, ensuring that informants face no professional, personal, or administrative disadvantages for speaking up.

Human Rights and Talent Management

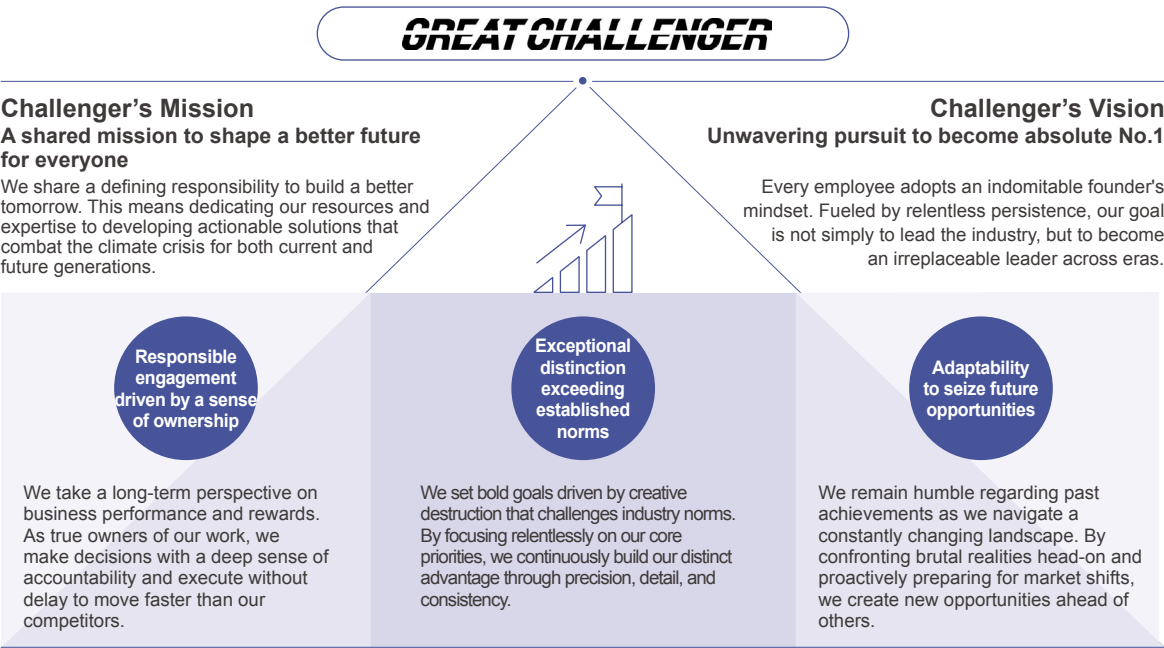


Talent Management Strategic Framework

At **Hanwha TotalEnergies Petrochemical**, we view our highly capable workforce as the foundational driver of sustainable growth and the contributors to global society. We continuously evaluate and enhance our workplace to provide an environment where employees can maximize their potential, achieving both personal fulfillment and deep professional engagement through a healthy work-life balance. Our talent management framework sets transparent expectations and performance benchmarks tailored to specific job functions. Through fair evaluations and structured feedback, we help team members recognize their core strengths and development areas. This strategy drives autonomous professional growth, establishing a strong talent pipeline where individual development and corporate success create a sustainable, mutually reinforcing cycle.

Talent Model

Hanwha TotalEnergies Petrochemical brings the group-wide talent framework, the "Great Challenger," to life by cultivating three core values across our workforce: ownership, exceptional distinction, and adaptability to change. To embed these principles from corporate slogans into everyday work practices, we continuously expand our internal instructor networks and specialized training programs. This ongoing structural support ensures that our workforce naturally demonstrates these core values throughout their daily operations and strategic execution.



Talent Management Strategy and Objectives

Hanwha TotalEnergies Petrochemical operates systematic programs designed to support continuous employee growth and professional development. For strategic career management, we leverage Individual Development Plans (IDPs) alongside targeted job rotations and core talent pool cultivation to ensure long-term development. We systematically build workforce capabilities through the level-specific "Career Challenger" job training system and the "Skill Hub" functional training platform. Furthermore, we align individual growth with corporate success by tying advancement opportunities directly to performance evaluations and ongoing feedback.

By pairing active internal mobility with talent policies rooted in diversity and inclusion, we continually reinforce our long-term competitive advantage.

2025 Training Completion Rates			
New Hire Onboarding	Experienced Hire Retention	Career Challenger I	Career Challenger II/III/IV
100%	93%	100%	79%



Talent Management Strategy, Target, and Performance

Goal	Strategic Initiatives	Mid-Term Target (~2030)	2025 Performance
Talent Management	Talent acquisition	Support employee growth	- Operated onboarding programs for new hires and tier-specific training courses tailored to career levels. - Established and executed an IDP-based individual career development and competency enhancement framework.
	Promotion of healthy organizational culture	Implement strategic HR	- Achieved strategic talent acquisition targets aligned with business strategies. - Built leadership succession plans to cultivate core talent and secure long-term organizational sustainability.
		Cultivate "Great Challenger" culture	Embedded core group values into new hire onboarding, conducted Hanwha Memorial Hall site visits, and trained internal culture instructors.
	Labor-management harmony	Enhance and revitalize workplace communication	Strengthened organizational trust and transparent communication through CEO business briefings and town hall meetings.
		Foster sound labor-management relations	- Facilitated field-driven communication through executive and divisional leadership forums. - Built mutual trust and fostered a collaborative labor culture by administering monthly grievance resolution processes.

Human Rights and Talent Management



Talent Management Strategic Framework

Fair and Transparent Hiring

Hanwha TotalEnergies Petrochemical operates a structured, merit-based hiring process grounded in standardized criteria and transparency. Throughout the entire recruitment process, the company evaluates candidates holistically based on clear job descriptions to assess experience, core competencies, and growth potential. To ensure consistency, all evaluation metrics and selection procedures are clearly defined in advance. Furthermore, mandatory interviewer training is conducted to align evaluation standards, eliminate discriminatory practices, and minimize cognitive bias. By providing applicants with comprehensive access to role requirements and expectation metrics, the company actively mitigates information asymmetry. Additionally, **Hanwha TotalEnergies Petrochemical** drives social value creation by maintaining specialized incentive frameworks for candidates with disabilities and veteran status.

Industry-Academia Cooperation & Scholarship Programs

Hanwha TotalEnergies Petrochemical operates robust industry co-ops and academic scholarship initiatives to identify high-potential talent early and cultivate them systematically. The company discovers promising talent in specialized R&D and technology sectors, providing financial sponsorship to ensure students can focus entirely on their research and academic advancements. To bridge theory and practice, the company offers collaborative engagement programs that enhance operational understanding aligned with participants' fields of study. Ultimately, these initiatives feed directly into future recruitment pipelines, establishing a sustainable framework for mutual growth.

Performance Evaluation & Compensation

Hanwha TotalEnergies Petrochemical eliminates traditional hierarchies and fosters a collaborative, innovative workplace. As part of this initiative, the company utilizes a single, unified professional title, "Pro," for all employees. The company's role-centric human resources system evaluates both current performance metrics and future leadership potential to determine promotion eligibility. This structure establishes an accelerated, merit-based career path that allows high-potential talent to advance rapidly. Furthermore, strict anti-discrimination protocols ensure that gender, age, and academic background play no role in advancement, evaluations, or compensation. The company continuously enhances the equity and transparency of its talent operations through a structured promotion point system and advanced, KPI-driven performance evaluations.



Talent Development Programs

Hanwha TotalEnergies Petrochemical drives professional growth through a structured talent development framework centered on three core pillars: Leadership, Job Competency, and Employee Experience.

01

Leadership Capability Advancement

Designed to help leaders and leader-candidates navigate shifting business environments, strategic leadership forums foster organizational change through expert-led sessions and collaborative dialogue. Long-term technological competitiveness is secured by sponsoring master's and doctoral programs in engineering and sciences. This targeted educational investment ensures technical personnel and researchers transition into next-generation technical leaders.

02

Functional & Technical Excellence

To accelerate the operational readiness of new hires, structured technical tracks are deployed across the organization. These include the "Skill Basic" program—which covers the corporate value chain and organizational structure—and the "Understanding Production Plants" course, detailing site-specific manufacturing processes. Beyond internal onboarding, an external training tuition reimbursement system empowers employees to autonomously acquire specialized expertise, keeping pace with rapidly evolving industry trends.

03

Employee Experience Enrichment

Across every milestone of the employee lifecycle, strategic educational frameworks ensure a positive, sustainable career journey. The pipeline initiates with foundational onboarding for new and experienced hires, transitioning smoothly into the "Connect: HTC" program, which maps career paths and drives retention for mid-career talent. Further advancement brings targeted support; at critical promotion intervals, the "Career Challenger" curriculum provides necessary change-management and development strategies. Finally, for personnel approaching retirement, structured outplacement services are delivered to ease the transition into post-corporate life.



Human Rights and Talent Management



Organizational Culture

Family-Friendly Management

Hanwha TotalEnergies Petrochemical fosters a flexible workplace infrastructure where employees maintain a healthy work-life balance while remaining deeply engaged. To accommodate diverse lifestyle needs, the company operates staggered commuting and flexible work models, complemented by dedicated sabbatical and refresh leave frameworks.

Overtime is managed equitably by prioritizing compensatory time off, with any remaining balance paid out as standard overtime wages. Sustained investments are also directed toward employee health and family stability. Corporate group medical insurance extends comprehensive health coverage to spouses and children, while childcare burdens are alleviated through tuition subsidies and an on-site corporate daycare. Bridging the benefits gap across employment types, the company extends these identical premium benefits to temporary workers who meet continuous employment milestones.

Driven by regular feedback and evolving workplace trends, these initiatives undergo continuous refinement. In recognition of these efforts, the Ministry of Gender Equality and Family designated Hanwha TotalEnergies Petrochemical as a Certified Family-Friendly Company through 2027, reflecting exceptional evaluations in work-life infrastructure, regulatory compliance, and employee satisfaction.

Employee Satisfaction

To systematically assess workplace experiences and cultural perceptions, Hanwha TotalEnergies Petrochemical conducts an annual organizational culture assessment. The 2025 assessment gathered comprehensive data across the workforce, capturing vital metrics on vision sharing, employee engagement, and overall morale.

Following detailed analysis, the findings are shared transparently with leadership teams to identify strategic areas of improvement. Ultimately, this framework embeds worker feedback directly into operational planning to foster a more supportive corporate culture.

Work-Life & Family Support

To cultivate a healthy work-life balance, Hanwha TotalEnergies Petrochemical champions progressive, family-centric initiatives. To care for working families, the company offers dedicated paternity leave alongside time off to support a spouse through difficult moments like pregnancy loss. Parents can also utilize flexible leave when their children transition into school. Furthermore, mothers receive multi-layered health protection with up to 90 days of fertility leave and a reduced-hours schedule that doubles the standard legal benefit.

Key Employee Benefits



Time-Off & Leave Benefits

Annual Paid Time Off | 15+4

- 4 additional days of "Refresh Leave" on top of standard statutory annual leave

Long-Service Leave |

Rewarding hard work and dedication!

- Special paid milestone leave for every 10 years of continuous service

Family Events & Holiday Support |

Creating unforgettable moments with loved ones

- Major family events, including marriages, parental milestone birthdays (Suyeon), childbirth, and children's school events.

Sabbatical Leave | A well-deserved break to recharge

- One month paid sabbatical for every 7 years of continuous service



Work & Life Balance

Family & Maternity Protection Program | Supporting our working moms and working dads

- One month of paid paternity leave per childbirth
- Leave and assistance for fertility treatment
- Childcare leave available before and after children start school
- Mom's Package (Support items for employees or spouses during pregnancy)
- Daycare Center

Tuition Support | From preschool to higher education

- Educational assistance available from daycare to college

Comprehensive Medical Coverage | Prioritizing the health of our employees and their loved ones

- Group health and supplemental medical insurance covering employees, spouses, and children including comprehensive health screenings for spouses and dental care for employees



Flexible Work Arrangements

Staggered Working Hours |

Flexible start and end times

- Allows employees to customize their daily schedules with flexible core hours (e.g., 7 AM–4 PM, 8 AM–5 PM, 9 AM–6 PM).

Internal Career Mobility |

Map out your own professional trajectory

- Supports tailored personal and professional growth through structured IDPs and internal job rotation opportunities.

Cyber Training Center | Grow into global talent

- Allows enrollment in up to three online professional courses per month
- Fully subsidizes official foreign language examination (OPIC) fees

Compensatory Time-Off / Flextime

Bank your extra hours for future time off!

- Allows accumulated overtime (OT) hours to be banked and converted into compensatory short-work days

Training Programs | Elevate your professional credentials

- Support for master's and doctoral studies for selected employees
- Technical training at overseas licensors



Financial & Lifestyle Benefits

Housing Assistance | Helping employees build stability

- Low-interest mortgage assistance or leasehold deposit (Jeonse) loan interest subsidies for non-homeowning employees

Welfare Points | Supporting everyday lifestyle

- Allocates annual discretionary points to be used freely across leisure, retail, medical expenses, and professional development.

Shared Offices | Work anywhere, stay connected

- Access to coworking spaces in Seoul & Seosan

Human Rights and Talent Management



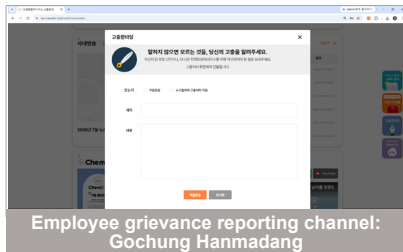
Organizational Culture

Sound Labor-Management Relations

To ensure the practical protection of basic labor rights—including the rights to organize, bargain collectively, and take collective action—**Hanwha TotalEnergies Petrochemical** strictly adheres to constitutional mandates and relevant labor regulations. The company formalized its commitment to a healthy, collaborative partnership through the Joint Declaration of Labor-Management Harmony and Peace. This pledge is actively maintained through routine wage and collective bargaining, joint workshops, unity events, and structured labor-management councils.

Labor-Management Council

Operating in full compliance with legal frameworks that safeguard worker rights, our Labor-Management Council serves as a vital platform for open communication, employee welfare, and sustainable corporate growth. The council meets quarterly, ensuring full attendance from both labor and management representatives to discuss and resolve matters regarding working conditions and benefits. In 2025, the council held four regular sessions to address nine key agenda items focused on workplace environment enhancements, employee health promotion, and expanded welfare benefits. By integrating these resolutions directly into corporate decision-making, the company successfully delivered tangible upgrades to on-site working conditions and overall workplace satisfaction.



Labor-Management Council Activities in 2025

4 meetings held

(Total of 9 agenda items resolved)



Fostering Labor-Management Harmony

Hanwha TotalEnergies Petrochemical drives workplace collaboration through transparent, multi-level communication channels. Every month, department heads and production managers meet to align on labor policies, working hours, and collective bargaining. To ensure continuous improvement, the company collects department-level feedback monthly and tracks follow-up actions, while transparently communicating key management issues through company-wide sharing of monthly performance review meetings and business briefings.

Cross-functional engagement is further strengthened by leadership-employee town halls and the Junior Board (Young-HTC). These platforms complement a lively workplace culture featuring 30 affinity clubs, internal media broadcasting, and community-building programs. Frontline concerns are resolved promptly through Gochung Hanmadang (The Employee Grievance Forum), a dedicated channel for operational feedback.

Embracing Diversity

Empowering Female Talent

Hanwha TotalEnergies Petrochemical is dedicated to fostering an equitable corporate culture where employees can maximize their potential regardless of gender. Recognizing the historically male-dominated landscape of the petrochemical industry, the company maintains a strictly merit-based, non-discriminatory hiring policy to attract top-tier female professionals.

Central to this strategy is a sustainable talent pipeline that integrates equitable recruitment, workplace retention, and upward mobility, ensuring women have a clear trajectory for long-term career growth. This structured commitment has yielded clear results: the voluntary turnover rate for female personnel remains lower than that of their male counterparts, while the representation of women in leadership roles has risen steadily over the past three years. Moving forward, the organization will continue embedding Diversity, Equity, and Inclusion (DEI) values throughout its core business strategy, cultivating an inclusive environment where all employees can thrive with pride.

Turnover Rate
by Gender (2025)
Female

3.6%

Turnover Rate
by Gender (2025)
Male

8.6%



Employment of Persons with Disabilities

At **Hanwha TotalEnergies Petrochemical**, building a truly inclusive environment means investing heavily in stable career paths for employees with disabilities. We are steadily increasing direct hiring by matching individuals to roles that fit their unique strengths. Once on board, our team members are supported through customized workplace adaptations and specialized job rotations that help them adjust smoothly and thrive in their careers. Beyond direct employment, the company contributes to indirect job creation by purchasing goods and services from standard workplaces for persons with disabilities.

We remain fully committed to expanding employment opportunities and enhancing our working environments so that team members of all abilities can thrive in stable careers. This ongoing dedication allows us to foster an inclusive culture while driving meaningful progress in corporate diversity and social impact.

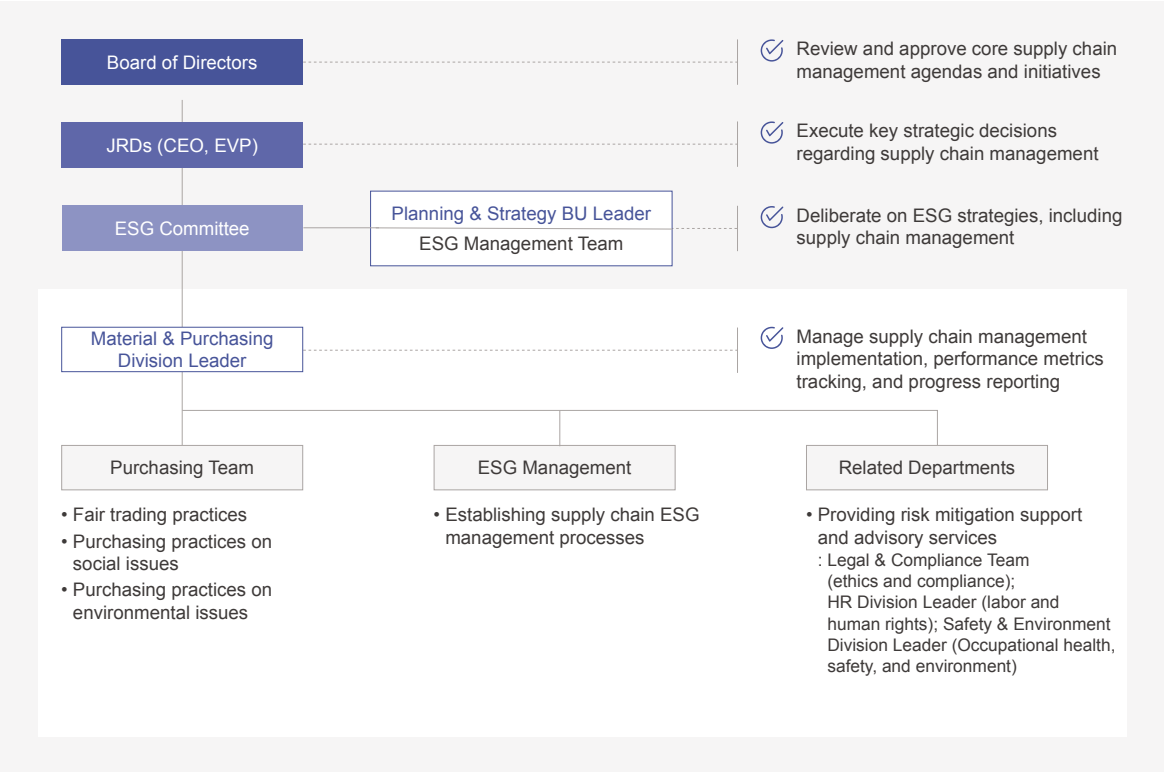
Sustainable Supply Chain



Sustainable Supply Chain Management Framework

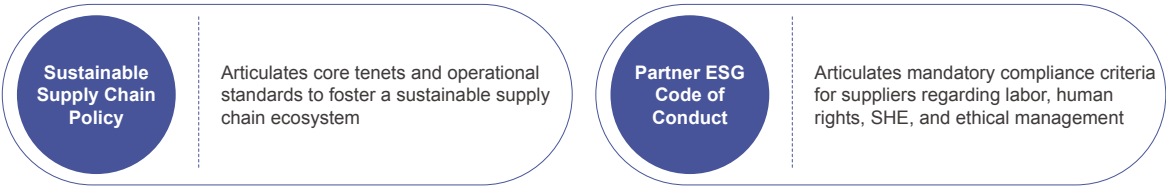
To build a resilient and sustainable supply chain, Hanwha TotalEnergies Petrochemical operates a comprehensive, enterprise-wide governance framework. Managing ESG-related risks within our network is a collaborative effort led by the procurement division, which works in close alignment with key departments including ESG Management, Compliance, HR, and SHE. Backed by this robust internal structure, the company cultivates transparent, responsible partnerships with its suppliers to steadily strengthen sustainability across the entire supply chain.

Sustainable Supply Chain Governance Structure



Sustainable Supply Chain Strategic Framework

Sustainable Supply Chain Policy



Sustainable Supply Chain Strategy, Target, and Performance

Goal	Strategic Initiatives	Mid-Term Target (~2030)	2025 Performance
Responsible Supply Chain Management	Establishment of sustainable supply chain management system	Build and optimize supply chain ESG management process	Established a roadmap for regular supplier ESG evaluations and the development of supply chain management processes
	Mutual growth with partners	Enhance shared growth cooperation and safety management capabilities	100% inclusion of SHE-related obligations and responsibilities in contracts*

* Limited to contracted vendors subject to the evaluation criteria under the Serious Accidents Punishment Act.

Key Identified Impacts, Risks, and Opportunities

Impacts, Risks, and Opportunities(IROs)	
Impacts	Expansion of partnerships with suppliers who meet strict environmental and social criteria to elevate overall supply chain sustainability and foster a responsible industrial ecosystem. Negative environmental incidents within the supply chain—such as chemical spills during raw material manufacturing or transportation—causing local community health risks and ecological degradation.
Risks	Trade restrictions and revenue decline driven by unfair practices, unethical behavior, or controversies within the supply chain as global clients tighten vendor ethical standards.
Opportunities	Cultivation of long-term, trusted relationships across the supply chain to enhance market competitiveness, securing a distinct advantage in winning new contracts and driving revenue growth.

Sustainable Supply Chain



Supply Chain Management Strategy

Supply Chain ESG Management Roadmap

Strategic Pillars	Current Status	Short-Term Target (2026–2027)	Mid-Term Target (2028–2029)	Long-Term Target (2030~)
Policy Development	- Established a Sustainable Supply Chain Policy. - Established a Partners ESG Code of Conduct.	Establish supply chain management processes.	Document and execute supply chain management processes.	- Secure Partner Code of Conduct signatures from both existing and new procurement partners. - Integrate environmental, labor, and human rights clauses directly into procurement contracts.
Supply Chain Risk Management	Conducted pilot assessments (2024).	Execute sustainability risk analyses on procurement partners based on pilot results and integrate findings into supply chain management processes.	- Regularize partner self-assessments (Evaluate environmental and social practices via structured questionnaires). - Conduct on-site audits to evaluate the sustainability practices of procurement partners. - Identify adverse environmental/social impacts within the supply chain and derive required corrective actions.	- Monitor continuous improvements of procurement partners. - Develop and operate performance-based programs featuring penalty and incentive frameworks.
Procurement Capacity Building		Launch new ESG training programs dedicated to procurement personnel.	Institutionalize ESG training for all procurement staff.	Maintain a 100% completion rate for ESG training among procurement staff and integrate metrics into internal KPIs.

Partner Risk Management

Regular Supplier Evaluations

Hanwha TotalEnergies Petrochemical conducts annual evaluations of our partners' performance and operational status. These assessments target the top 80% of partners by annual transaction volume, allowing us to measure their competitiveness and proactively detect potential risks within our supply chain. Furthermore, the company leverages these evaluation results during the supplier selection process to prevent internal collusion or misconduct, ensuring that competitive partners are protected from unfair disadvantages.

Anti-Corruption Management for New Partners

When registering new vendors, Hanwha TotalEnergies Petrochemical utilizes a Due Diligence Questionnaire to systematically screen for third-party corruption risks. Additionally, we require all partners providing procurement, contracting, or outsourcing services to execute a Compliance Pledge. This binding commitment ensures adherence to ethical and legal practices, fostering fair trade practices, preventing corruption, and cultivating a transparent corporate culture. The company continues to advance its anti-corruption initiatives by distributing comprehensive compliance guidelines, including frameworks regarding the Improper Solicitation and Graft Act.

Partner ESG Assessments

Following our 2024 ESG pilot assessments for global and domestic procurement partners, the company is upgrading its sustainability workflows for more systematic management. We are using the core takeaways from the pilot to recalibrate our evaluation indicators, ensuring they are practical and effective as we transition these ESG assessments into a standardized, recurring routine. Specifically, the company is sharpening its evaluation criteria across all ESG pillars by blending quantitative and qualitative indicators that reflect specific sector dynamics and global regulatory shifts. To ensure these audits lead to real-world progress rather than basic administrative check-ins, we provide tailored feedback and actionable guidelines to drive genuine partner improvements. The company is also reviewing support frameworks to link these assessments with capability-building programs, such as specialized training initiatives, when necessary. Through this systematic foundation, the company promotes mutual growth with its partners while securing world-class, sustainable supply chain competitiveness.

Sustainable Supply Chain



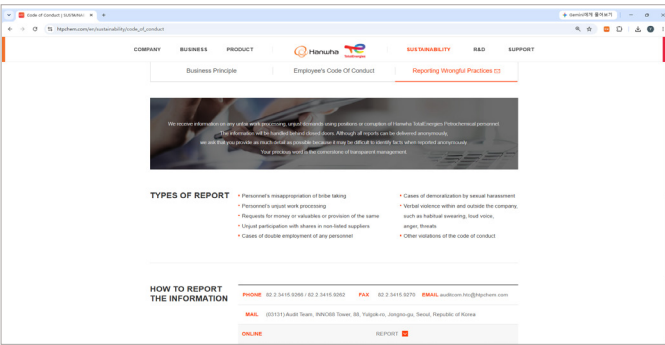
Key Supply Chain Management Activities

Strategic Supply Management (SSM)

At **Hanwha TotalEnergies Petrochemical**, the organizational units operating under the Material & Purchasing Division execute three core mandates: (I) We formulate strategic supply management. SSM is an end-to-end framework that covers buying policies, process design, partner management, inventory control, and purchasing information management. This strategy expands past the traditional Procure-to-Pay scope to optimize every phase of the lifecycle, from the demand stage through settlement to material consumption and disposal. This infrastructure enables (II) efficient, high-impact purchasing decisions that deliver top-tier, optimized solutions to our internal clients. Ultimately, (III) contributes to the company's sustainable profit improvement through cost and expense reductions in purchasing and material management.

Partner Reporting Channel

Hanwha TotalEnergies Petrochemical operates a dedicated grievance and reporting channel on its official website, allowing all partners to report any unfair business practices, unjust demands, misconduct, or human rights violations encountered during their commercial relationship with the company. All reports are routed directly to the designated department, and the absolute anonymity of whistleblowers is strictly guaranteed to protect them against any forms of retaliation or disadvantage.



Shared Growth with Partners

To incentivize continuous safety improvements across its value chain, the company has implemented the AP-CSMS (Audit Protocol - Contractor Safety Management System) to systematically evaluate its partners' safety frameworks.

Furthermore, to ensure the selection of new partners with exceptional safety capabilities, safety management criteria account for more than 50% of the initial evaluation matrix. We also integrate qualified health and safety contractor assessment results into the contracting process, while assigning an extensive weight of approximately 70% to safety metrics during annual partner performance reviews. Additionally, the company operates a diverse range of shared-growth support initiatives to actively strengthen the long-term operational capabilities of its partners.

100% integration of SHE compliance terms and liabilities into partner agreements

100%

(Limited to contracted vendors subject to the evaluation criteria under the Serious Accidents Punishment Act.)



Shared Growth Program

Category	Major Programs	Implementation
Systems	Partner safety management system evaluation: Framework updates and new applications	2017 ~
	Partner health and safety mentoring: Risk assessment frameworks	Ongoing
	Rebuilding the dedicated partner portal (HTC Partner Platform)	2023 ~
Core Competencies/ Safety Awareness	Safety Leadership Program	2023 ~
	VR Safety Training	2023 ~
	Partner safety and health campaigns and outreach	Ongoing
Work Environment Improvement	Recognition for outstanding partners/workers (STOP activities, etc.)	Ongoing
	Technical support for partner workplace safety measurements	Ongoing
	Installation of dedicated rest areas for partner personnel	Ongoing
On-Site Safety Management Support	Subsidizing safety and health management costs for contracted projects	Ongoing
	Operation of a safety support group for supervising partner construction work	Ongoing
	Inspections and educational guides for temporary scaffolding	Ongoing
	Provision of essential facilities and safety infrastructure	Ongoing
	Diagnostics and inspection support for heavy construction machinery	Ongoing
	Supply of specialized gear (e.g., heat-resistant apparel, respirators)	Ongoing
	Allowances for certified partner safety managers	Ongoing
	Targeted training programs for on-site resident partner supervisors	2025 ~

Strategic Social Contribution



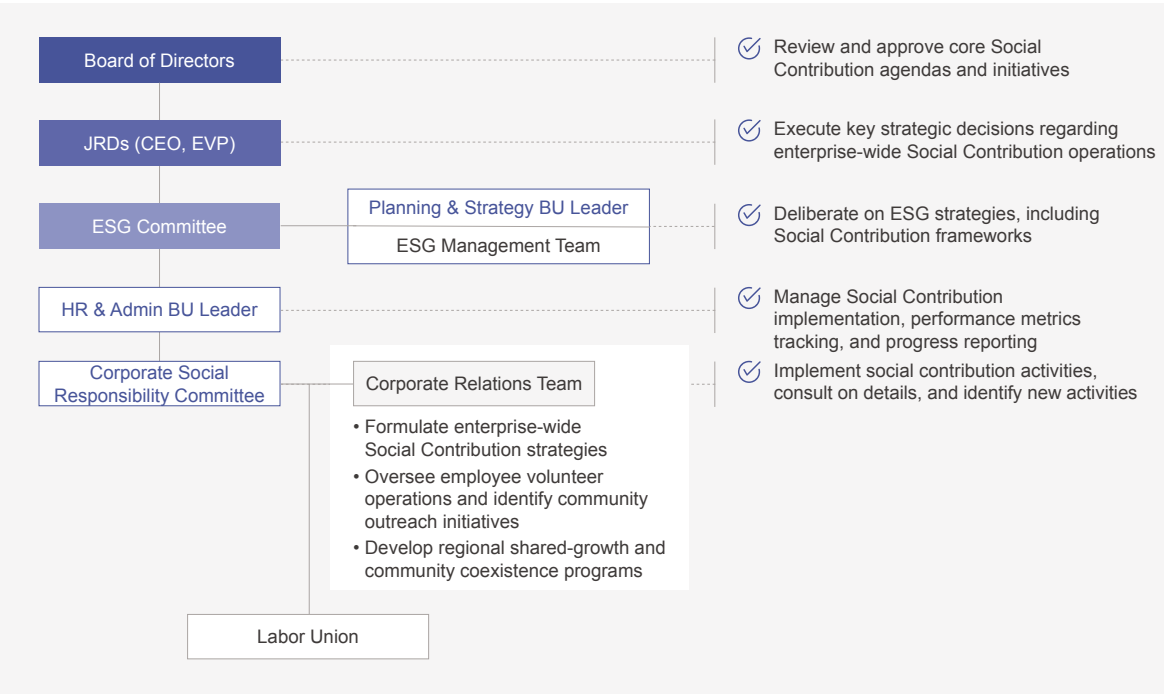
Social Contribution Management Framework

Guided by the Hanwha Group philosophy of "Going Further, Together," Hanwha TotalEnergies Petrochemical actively promotes sustainable, mutual growth alongside local communities. We focus on developing initiatives that drive meaningful, localized change, establishing a virtuous cycle where the company and society thrive in harmony.

To effectively fulfill our social responsibilities, the organization anchors its Social Contribution strategy across four core pillars: Community shared growth, Talent Development, eco-friendliness, and local infrastructure development. Our commitment to authentic engagement is reinforced by our social contribution fund, which is financed directly through voluntary payroll contributions from our executives and employees. The company also facilitates various hands-on volunteer programs, empowering our workforce to actively spearhead social value creation.

Our social contribution activities are guided by our Ethics Charter, and any corporate donations over a set financial baseline require formal reporting and approval by the Board of Directors. By maintaining this systematic oversight, we reinforce public trust and advance our long-term vision for ESG management.

Social Contribution Governance Structure

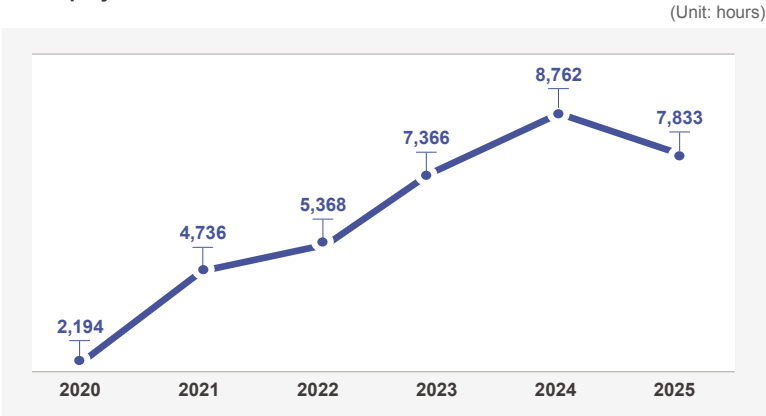


Social Contribution Strategic Framework

Social Contribution Strategy, Target, and Performance

Strategy	Mid-Term Target(~2030)	2025 Performance
Shared Growth with Local Communities	Strengthen mutual growth and cooperation across diverse community demographics	Senior Appreciation Day
	Generate and redistribute local community income	Regional Harvest Donation Initiative
	Support local small and medium-sized businesses	The Seasonal Kimchi Relief Initiative
	Facilitate multicultural family integration and children's growth	Locally sourced restaurant support
	Subsidize local organizations and community villages	Multicultural Family Support Programs
	Sponsor community-focused public interest projects	Support for Local Organizations, Traditional Events, and Festivals
Creating a Sustainable Environment	Engage in local marine ecosystem conservation activities	Local Village Environment Improvement Program
	Drive low-carbon and eco-friendly green campaigns	Marine Ecosystem Conservation Initiative (releasing fingerlings)
Cultivating Regional Talent & Social Welfare	Cultivate future talent through educational initiatives	Solar streetlight installation on local farm road
	Champion regional youth support programs	Scholarship program for eight local high schools
	Provide medical expense subsidies for local youth	Daesan Scholarship Foundation
		Support for the self-reliance of local youth in care
		Subsidized medical treatments for low-income students battling intractable diseases

Employee Volunteer Hours



Internal Volunteer Teams Throughout 2025

A total of **94** teams

Total Volunteer Hours

7,833 hours



Strategic Social Contribution



Community Engagement Initiatives

Social Contribution Activities with Local Communities

Inspired by Hanwha Group's "Going Further, Together" vision, the company operates a multi-layered shared growth model that simultaneously considers the local economy, welfare, and environment.



Local Community Shared Growth Programs

Senior Appreciation Day

1,500 people

Hosted an annual Parents' Day appreciation for 1,500 senior citizens across the rural Daesan-eup region, providing community connection, festive meals, and live performances.

Local Rice and Agricultural Product Purchase Program

3,175 bags

Procured 3,175 bags of locally harvested Daesan rice, simultaneously supporting regional farmers and supplying essential nutrition to grassroots welfare networks that care for low-income households, isolated seniors, and individuals with disabilities.

Seosan Table Partnership

81 client companies

Directed into the regional agricultural market to supply local produce to the employee dining facilities of 81 corporate clients, supporting local growers and industrial partners in tandem.

Multicultural Family Support Programs

Support emotional well-being and settlement of low-income multicultural families through club and experiential activities.

Support for Local Organizations, Traditional Events, and Festivals

Provided strategic funding to regional community organizations, traditional ceremonies, and flagship festivals to drive tourism and accelerate income growth for local small business owners and micro-merchants.

Local Village Environment Improvement Program

Mobilized volunteer coalitions—uniting civic groups, municipal authorities, and employees—to execute hands-on environmental restoration and urban revitalization campaigns that upgrade the regional living environment.

Udo Island Transport Subsidy

Contributed to subsidize operational overhead for the sole ferry transit line serving Udo Island, lowering travel costs for residents and unlocking sustainable eco-tourism.



Employee Volunteering at the Senior Appreciation Day



Seosan Table



Local village environment improvement



Environmental Sustainability, Regional Talent Development, and Support for Vulnerable Groups

Marine Ecosystem Conservation Initiative

250,000 fingerlings released

Released approximately 250,000 fingerlings—including clams, flatfish, and rockfish—into the waters of Samgilpo in the rural Daesan-eup region to enrich the marine environment and increase local fishers' income.

Solar Streetlamp Installation

Installed solar-powered streetlights along dark agricultural pathways across the Daesan region, improving night visibility and upgrading living conditions for residents via low-carbon infrastructure.

Regional Academic Grants

8 high schools

Awarded in academic scholarships to 30 select high school students across eight secondary institutions in the Seosan area.

Youth Career Exploration Support

86 students

Sponsored interactive career-mentoring and vocational cultural experiences for 86 underprivileged elementary school students in Seosan, empowering them to discover and nurture their long-term aptitudes.

Higher Education Self-Reliance Support

10 people

Contributed in foundational self-reliance subsidies to 10 low-income high school graduates entering universities, covering essential living expenses to ensure successful academic transitions.

After-School Development Program

100 people

Partnered with the Seosan Office of Education to fund after-school programs and extracurricular club activities for 100 elementary school students from near-poverty households.

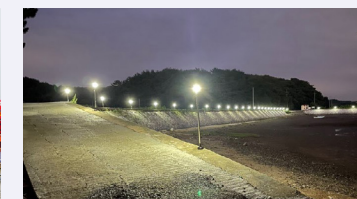
Lifelong Senior Education & Welfare Support

200 people

Directed to local senior colleges and community centers across Daesan, subsidizing dining costs and seasonal heating expenses for roughly 200 elder students.



Marine Conservation: Releasing Juvenile Fish



Green Infrastructure: Deploying Solar Streetlight



Career and Vocational Exploration Program for Youth

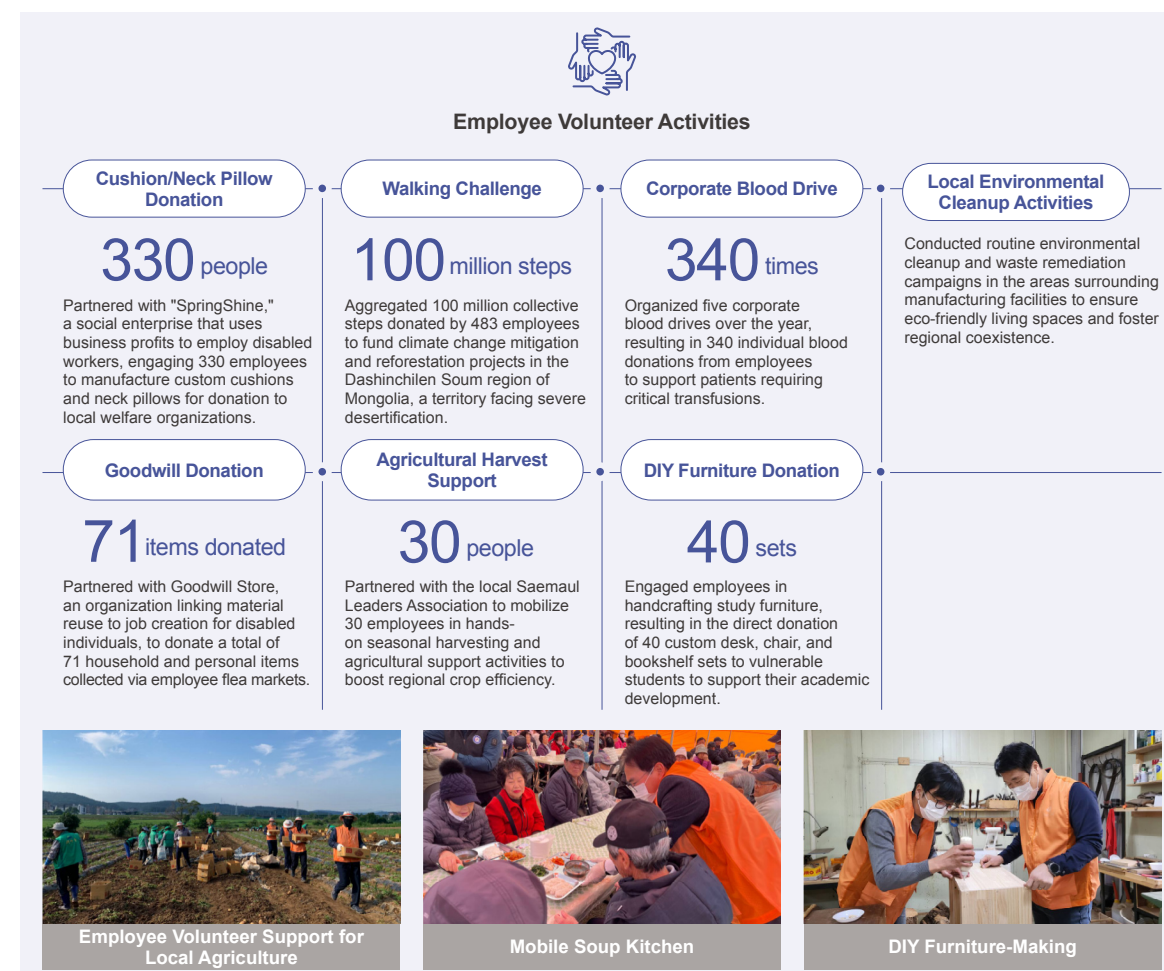
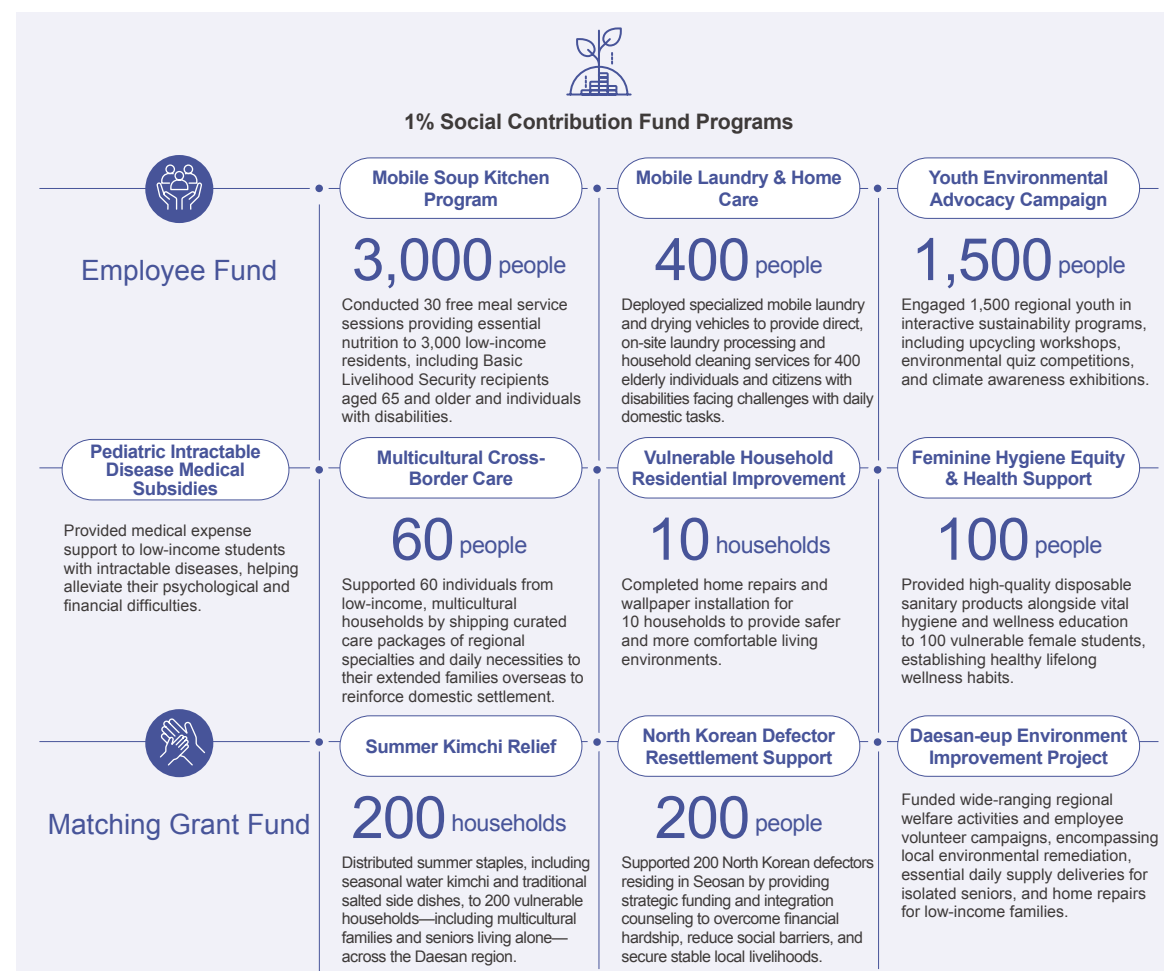
Strategic Social Contribution



Social Contribution Activities with Employees

The 1% Social Contribution Fund Created Jointly by Labor and Management

Hanwha TotalEnergies Petrochemical establishes a 1% social contribution fund by combining voluntary employee donations (0.5% of base salary) with the company's matching grant (0.5%). Reflecting a shared vision between labor and management, this fund is operated transparently and fairly through the Corporate Social Responsibility Committee, jointly formed by the company and the labor union. Utilizing this dedicated fund, the company deploys systematic and specialized initiatives designed to build a sustainable tomorrow in tandem with local communities.



GOVERNANCE



**Legal and Ethical
Compliance**



**Proactive Risk
Management and Response**



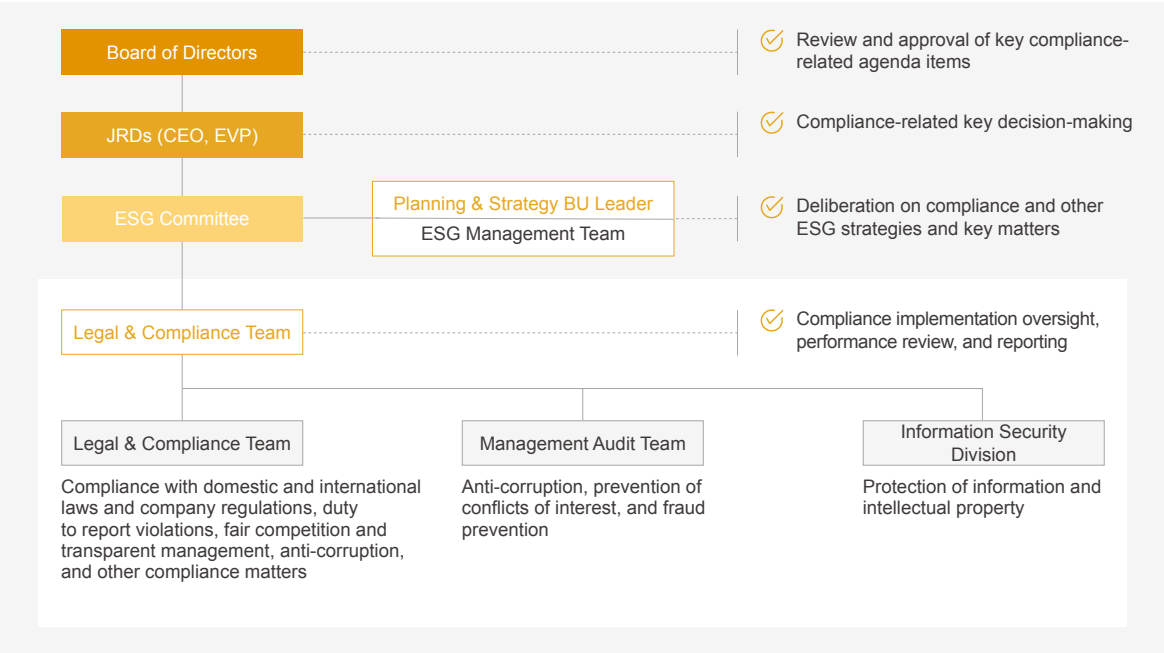
Legal and Ethical Compliance

2026 Material Topic 

Governance

Hanwha TotalEnergies Petrochemical recognizes the importance of compliance and ethical management and operates a company-wide governance framework to manage these systematically. The Legal & Compliance Team, reporting directly to the JRDs, oversees all compliance-related matters and is responsible for the identification, assessment, and overall management of related risks, reporting annual performance and plans to the Board of Directors (BOD) on a regular basis. The Board reviews and oversees overall compliance activities based on these reports, and the leader of the Legal & Compliance Team attends every board meeting in person to closely monitor key compliance risks and ensure that a compliance perspective is thoroughly integrated into the company's highest decision-making processes.

Compliance and Ethical Management Governance Structure



Ethical · Compliance Management Policy

Hanwha TotalEnergies Petrochemical has established and operates a policy defining the fundamental principles and obligations that all employees must follow to ensure compliance in the course of performing their duties. Through adherence to this Policy, we aim to promote ethical management grounded in laws and integrity, protect our employees, and support the sustainable growth and development of our organization.

Metrics and Targets

Hanwha TotalEnergies Petrochemical is working to embed legal and ethical compliance throughout its corporate culture, and as a global company committed to social responsibility, has set concrete management goals and is pursuing continuous improvement activities to establish a clean and transparent organizational culture.

Compliance and Ethical Management Strategy, Target, and Performance

Goal	Strategic Initiatives	Mid-Term Target (~2030)	2025 Performance	2026 Plans
- Establish and continuously enhance the preemptive compliance risk detection system - Expand a compliance-oriented organizational culture and establish customized training by level and job function	System enhancement	Establish and continuously enhance the preemptive risk detection system	- Built an AI-based company-wide process for enacting and revising regulations - Revised subcontracting and internal transaction guidelines	Establish and revise compliance manuals and guidelines
	Communication	Expand a compliance-oriented organizational culture	- Held Compliance Week - Diversified content such as compliance comics, card news, and in-house broadcasts	- Continue regular Compliance Week events - Produce compliance content using AI
	Training	Establish customized training by level and job function	Conducted general training and training by level/job function/special training	Continue general training and training by level/job function/special training
	Inspections	Establish a risk-based inspection system	- Conducted inspections on subcontracting transactions, internal transactions, and cartel-related issues - Conducted overseas site inspection	- Inspect implementation status of existing operational systems - Continue overseas site inspections

Key Identified Impacts, Risks, and Opportunities

Impacts, Risks, and Opportunities(IROs)	
Impacts	Failure to establish a management system for applicable laws and regulations may result in negative impacts not only on the company's internal risk profile but also on the broader environment and society Building and operating a systematic compliance program to spread a culture of legal compliance and enhance social trust
Risks	Inadequate safety and environmental compliance management may lead to revenue loss from suspension or shutdown of business operations due to permit revocation
Opportunities	Advancing the compliance management system reduces legal violation risk and lowers risk-related costs such as fines and litigation expenses

Legal and Ethical Compliance

2026 Material Topic



Strategy

Legal and Ethical Compliance Activities

Ethical and compliance management requires more than having systems or regulations in place—it must be developed into a culture in which all employees voluntarily participate and practice. **Hanwha TotalEnergies Petrochemical** regards legal and ethical compliance as the foundation of sustainable management and operates diverse training programs and systematic communication activities to embed it throughout the organization.

Compliance Training

Hanwha TotalEnergies Petrochemical operates a range of compliance training programs to spread a culture of compliance throughout the organization. The 2025 Compliance General Training covered topics such as compliance culture, information security, anti-corruption, and bribery, while the 2025 H-Standard Training addressed compliance issues including the Improper Solicitation and Graft Act, workplace harassment and sexual harassment, embezzlement and breach of trust, trade secrets, and personal data protection. The company has broadly implemented tailored training by level, ranging from onboarding programs for new hires to advanced sessions for executives and high-risk role holders, while special training reflecting the characteristics of each business unit helps prevent risks that are often overlooked in day-to-day operations. A variety of delivery formats, including live online sessions, on-site programs, and case-based learning, enhance the effectiveness of training, and dedicated programs for overseas sites and non-Korean employees ensure that compliance is consistently practiced across diverse business environments.

2025 Compliance General Training

938
participants completed

(91% completion rate among eligible employees)



2025 H-Standard Online Training

1,782
participants completed

(95% completion rate among eligible employees)



2025 Ethical Management Training

15
sessions held

(244 participants completed, including staff from procurement and contracting departments)



Ethical Management Training

Hanwha TotalEnergies Petrochemical continuously strengthens a culture of integrity by providing ethical management training that sets out standards of conduct for sound business practices. The training is tailored by level—covering new hires, general employees, and department heads/executives—and is delivered across global operations, including personnel at overseas sites. Since 2025, the scope of training has expanded to focus on organizations involved in procurement and contracting, intensively strengthening ethical awareness and compliance capabilities in high-risk transaction areas such as procurement, sales, and supplier management, thereby preventing conflicts of interest and misconduct risks that may arise in the course of business. This training is closely linked to the operation of the internal reporting system (Hotline), helping employees clearly understand reportable conduct, reporting procedures, the principle of anonymity, and the no-retaliation policy, thereby enhancing the effectiveness of the reporting system.

Communication Programs

Hanwha TotalEnergies Petrochemical carries out a range of communication activities to help all employees more easily recognize and practice compliance.

Compliance Comic Series

Compliance topics presented as accessible, comic-style content serialized in the in-house magazine

Newsletter

Regular newsletters sharing key compliance issues and information with all employees

Compliance Week

A compliance event beginning with a message from the CEO, featuring a range of interactive content and programs

Card News

Card news on workplace harassment, introducing relevant definitions and real-life cases in an accessible format

In-house Special Broadcasts

In-house feature broadcasts on key compliance issues, delivering the content in a familiar and engaging way



Legal and Ethical Compliance

Strategy

Legal and Ethical Compliance Activities

Internal and External Reporting Channels

Hanwha TotalEnergies Petrochemical operates a reporting system (Hotline) to promptly detect and respond to legal and ethical violations. The system serves as a dedicated channel for reporting fair trade and subcontracting violations, unethical conduct such as corruption and bribery, and other violations of laws or internal regulations, enhancing reporting access for internal and external stakeholders and enabling early identification of potential risks. All reports may be submitted anonymously or with the reporter's name, with strict confidentiality maintained regarding the whistleblower's identity and the content of the report, and any disadvantage or retaliation on account of a report is strictly prohibited. Reports received are handled fairly through an independent review process, with appropriate improvements and corrective actions taken as needed.

Hanwha TotalEnergies Petrochemical's reporting process is structured to ensure independence and objectivity throughout, from report intake to follow-up management. In particular, a dedicated investigation team operates within an independent review structure, separate from other departments, strengthening fairness and reliability.

Reporting Channels

Reporter

Internal and External Stakeholders
(employees, partner companies, customers, local communities, etc.)



Category	Channel Type	Reporting Method	Features
Phone	Telephone Hotline (Hotline)	+82-2-3415-9266 (or 9262)	Real-time reception and consultation available
Online	Website	Website → Sustainability → Compliance Management → Report	24-hour reception, file attachment supported
Mobile	KakaoTalk Open Chat	Search KakaoTalk ('Hanwha TotalEnergies Petrochemical Report')	Anonymity-based, easy access

Report Type

Reports of legal violations, unethical conduct, or compliance and ethics risks involving employees (fair trade and subcontracting violations, unethical conduct such as corruption and bribery, and other violations of laws or the company's ethical management standards)

Whistle-blower Protection Measures

Anonymous Reporting Guaranteed

- Whistleblower identity and report content are strictly kept confidential and not disclosed against the individual's wishes
- Necessary protective measures are implemented to ensure whistleblowers face no disadvantage

Reporting Process

Report Received

Receipt of reports from internal and external stakeholders

Initial Review and Classification

Verification of report content and classification by type, including ethics, compliance, safety, and environment

Independent Fact-Finding

Conducted by a dedicated investigation team that is separate and independent from other departments, with external experts engaged as needed to ensure objectivity

Corrective Action and Improvement

Corrective measures and improvement activities based on investigation results

Result Notification and Follow-up Management

Notification to the whistleblower and ongoing monitoring and improvement activities to prevent recurrence of similar cases

Legal and Ethical Compliance

Risk Management

Compliance and Ethical Risk Inspection

For legal and ethical risks, it is more important to proactively identify and prevent high-likelihood, high-impact risk factors in advance than to respond after a problem has occurred. To this end, **Hanwha TotalEnergies Petrochemical** is building a prevention-focused risk management system that manages risks differentially, taking into account the characteristics of the organization, business environment, and risk profile. Potential risks are continuously managed through various monitoring activities, and in the event of a violation, the company responds promptly while taking measures to prevent recurrence of the same issue.

Preemptive Compliance Risk Detection

The company operates a forward-looking compliance risk management system to identify potential issues early and prevent violations before they occur. This proactive approach goes beyond responding to individual incidents—it lays the groundwork for sustainable, organization-wide compliance built on prevention and continuous awareness.

Third-Party Due Diligence

The company operates a third-party due diligence process to detect and manage compliance risks related to economic sanctions, anti-corruption, and anti-money laundering. All counterparties are screened through World-Check One, a global financial data platform provided by LSEG. For new vendor onboarding, the company collects a Due Diligence Questionnaire to proactively identify potential risks related to bribery or conflicts of interest.

Introduction of Vessel Sanctions Screening Procedures

The company introduced a vessel screening procedure in 2025 to strengthen the early identification of, and response to, vessel-related economic sanctions risks. This enables the company to check sanctions status and reflect the results in the approval process, proactively blocking vessel-related sanctions risks.

Review Process for Internal Transactions

The company conducts a review of internal transactions with affiliates in advance to minimize fair trade risks. Contracts are executed based on the results of this review, ensuring the appropriateness of each transaction. To improve both the effectiveness and efficiency of the process, the internal transaction checklist is regularly updated.

Subcontract Payment Adjustment Questionnaire System

In line with recent revisions to the Act on the Promotion of Mutually Beneficial Cooperation between Large Enterprises and Small and Medium Enterprises and Fair Transactions in Subcontracting Act, the company operates a questionnaire system to assess whether the Subcontract Payment Adjustment System applies to specific transactions. To mitigate legal risks and enhance regulatory understanding, the company also provides targeted training on the updated legislation.

Establishment of a Company-wide Process for Enacting and Revising Regulations

In 2025, the company further advanced its existing company-wide process for enacting and revising regulations by introducing AI. This enables faster and more systematic identification of regulatory changes and a review of their impact on relevant departments' work, helping prevent the risk of regulatory violations in advance.

Inspection and Monitoring

The company proactively manages the potential for compliance violations through regular and ad-hoc inspections of key risk areas. Issue-specific inspections and overseas site inspections are conducted, with corrective actions and recurrence-prevention activities implemented based on the results.

Thematic Compliance Monitoring

The company selects key compliance issues each year and reviews implementation status. During the inspection process, interviews and surveys are also conducted to assess employees' level of risk awareness, and improvement tasks are derived from the results to prevent compliance risks.

Overseas Compliance Inspections

The company operates overseas business units in China, Japan, Singapore, and Germany. Regular on-site inspections are conducted to verify compliance with local laws and internal regulations. Areas requiring improvement are addressed through corrective actions, strengthening the compliance risk management system across overseas operations.

Internal Audit

The company conducts regular and ad-hoc internal audits of key risk areas, including finance, operations, ethics, and compliance, to proactively identify potential risks and derive improvement measures. Audit results are reported to management, and follow-up action plans are established for identified improvement items, with ongoing monitoring of implementation to strengthen the effectiveness of the internal control system. The company's internal audit function operates independently from business operations and reviews the internal control system as a whole based on objectivity and fairness.

Anti-corruption Management

The company enhances employees' anti-corruption awareness through compliance general training and onboarding compliance training for new hires. The curriculum covers key provisions of domestic and international anti-corruption laws, including the FCPA and the Improper Solicitation and Graft Act, helping employees recognize related risks in advance and internalize a culture of compliance.

Legal and Ethical Compliance

2026 Material Topic

Information Security Policy

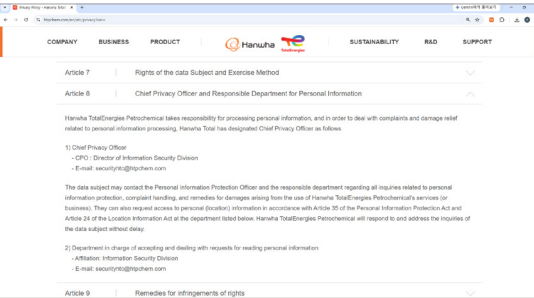
Hanwha TotalEnergies Petrochemical recognizes information security and personal data protection as core management priorities and has established and operates a systematic information security policy based on relevant laws and internal regulations to protect the company's technology and the valuable information of customers and stakeholders.

The company's information security policy sets out key matters such as organization, protective measures, and incident response, supported by detailed rules, procedures, and guidelines for implementation. A separate internal management plan has been established for personal data protection, defining protective measures across the entire lifecycle of personal data collection, use, storage, and destruction, and is continuously enacted and revised to reflect regulatory changes and emerging technology trends.

To strengthen information security governance, the company has formed and operates an Information Security Steering Committee, which meets regularly twice a year with participation from relevant departments including HR, General Affairs, IT, R&D, and Legal & Compliance to share the latest security trends and incident cases and establish company-wide information security activity plans. An annual information security level assessment is conducted to quantitatively diagnose the level of security management, with improvement tasks implemented based on the results to continuously enhance the security level.

Reporting Information Security Concerns

Hanwha TotalEnergies Petrochemical operates a reporting channel through which internal and external stakeholders can report information security concerns. Any matters related to personal data, complaints, or remedies arising from the use of the company's services (or business) can be raised through this reporting channel, with the relevant email address published on the company website and in the privacy policy.



Email: securityhtc@htpchem.com

Key Information Security Activities

Information Security Training

Hanwha TotalEnergies Petrochemical conducts a range of awareness-raising activities to strengthen information security awareness and prevent security incidents. Information security training is provided to all employees at least once a year, with separate advanced training tailored to job characteristics provided for key personnel such as those handling personal data and location information. In response to increasingly sophisticated ransomware and phishing attacks, the company conducts malicious email simulation drills four times a year to continuously strengthen employees' practical response capabilities. In addition, the latest security trends, key incident cases, and response guides are regularly communicated to raise employees' security awareness.

2025 Information Security Training

100% completion rate among eligible employees



2025 Malicious Email Simulation Drills

4 sessions conducted



Information Security Risk Management

Hanwha TotalEnergies Petrochemical operates a systematic information security risk management system to prevent security incidents. Multiple security systems, including DRM, DLP, and anti-virus solutions, are deployed across the IT infrastructure to proactively block information leaks and external intrusions, with strict encryption and access controls applied to key data, including personal information.

Security events such as malware infections and hacking attempts are continuously monitored in real time, 24 hours a day, with prompt response measures taken when anomalies are detected. Vulnerability assessments and penetration testing are conducted at least once a year on key systems, with identified vulnerabilities continuously remediated.

Incident response procedures are established and operated to minimize damage in the event of a security incident. In the case of a major security incident, a response team is formed under the leadership of the Information Security Officer to carry out prompt initial actions such as identifying the cause, isolating the network, suspending services, and preserving records. The company also maintains personal data liability insurance to minimize damage from breaches and fulfill compensation obligations.

To prevent information leaks through partner companies, security training is provided to IT partners, who are also required to sign security pledges. Annual security inspections are conducted on personal data processing vendors to manage their level of personal data protection, and partner company personnel are included in the quarterly malicious email simulation drills, proactively preventing security risks that may arise from partner companies.

Proactive Risk Management and Response



Risk Management Framework

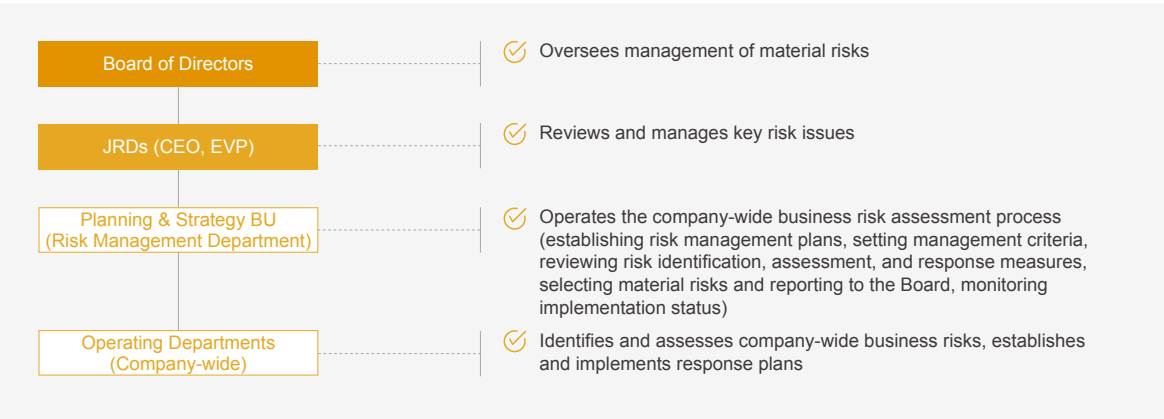
Enterprise Risk Management Framework

As uncertainty in the global business environment continues to grow, **Hanwha TotalEnergies Petrochemical** operates a company-wide risk management process to systematically manage the diverse risks that may arise across its operations. By proactively identifying potential risks and establishing assessment and response strategies, the company secures a stable foundation for sustainable growth and operations.

Under the leadership of the Planning & Strategy BU, the company manages enterprise-wide risk in an integrated manner, covering not only strategic, market, and operational risks but also non-financial risks such as reputation and support functions (human resources, regulatory, infrastructure, etc.). Material risks are prioritized based on their impact and likelihood, with response plans established and implementation status regularly reviewed. Risk definitions and management criteria are continuously refined in response to the evolving external environment.

The results of identified and assessed company-wide risk management activities are reported to the Board of Directors (BOD) on a regular basis, and the Board reviews and oversees material risks and response status. Through this process, the company continues to advance its enterprise-wide risk management system with the engagement and support of top management.

Enterprise Risk Management and Response Governance Structure



Risk Definition and Management

Hanwha TotalEnergies Petrochemical regularly identifies and updates key risks each year to reflect the evolving internal and external business environment. Risks are systematically assessed in accordance with internal risk management criteria, with material risks selected and managed based on a comprehensive consideration of impact and likelihood. For selected material risks, response plans are established and implementation status is continuously monitored, with management criteria and response frameworks advanced to reflect key changes.

Risk Classification and Key Content

Category	Type	Description
Strategy	Growth Strategy	- Failure to identify and execute timely investment opportunities - Slower growth due to insufficient response to changes in external conditions, markets, regulations, and policies (including transition risks from climate change) E
	Market Conditions	- Volatility in crude oil and feedstock prices, along with supply instability - Global economic downturn and product demand & price decrease - Disruptions in procurement of sub-materials, equipment, or supplier-related issues
Market	Client/Partner Issues	Counterparty insolvency or bankruptcy
	Transactions / Trade Regulatory Compliance	- Protectionist trade policies, anti-dumping claims, and FTA-related trade disputes G - Non-compliance with trade-related regulations such as the Fair Trade Act and the Petroleum Business Act G
	Production Disruptions	- Operational shutdowns due to fires, equipment failures, or natural disasters E (including physical risks from climate change) - Production disruptions caused by insufficient port or storage infrastructure
Operations	Logistics Issues	Shipment delays or stoppages due to logistics issues such as union strikes
	Financial Risks	- Errors in financial reporting or tax interpretation - Risks related to cash flow, liquidity, and foreign exchange
Reputation	Corporate Image	- Safety and environmental incidents E S - Corporate social responsibility issues S - Negative media coverage and reputational risks
	Human Resources	- Labor disputes and industrial actions S - Generational workforce transitions, loss of talented personnel, etc.
Other / Support Functions	Information Security / Infrastructure	- Cyberattacks, including hacking and data breaches G - IT infrastructure failures due to power outages, fires, or other disruptions, leading to system and service downtime both internally and externally

* **E S G** Marked items indicate non-financial risks — E (Environmental), S (Social), G (Governance)

Proactive Risk Management and Response

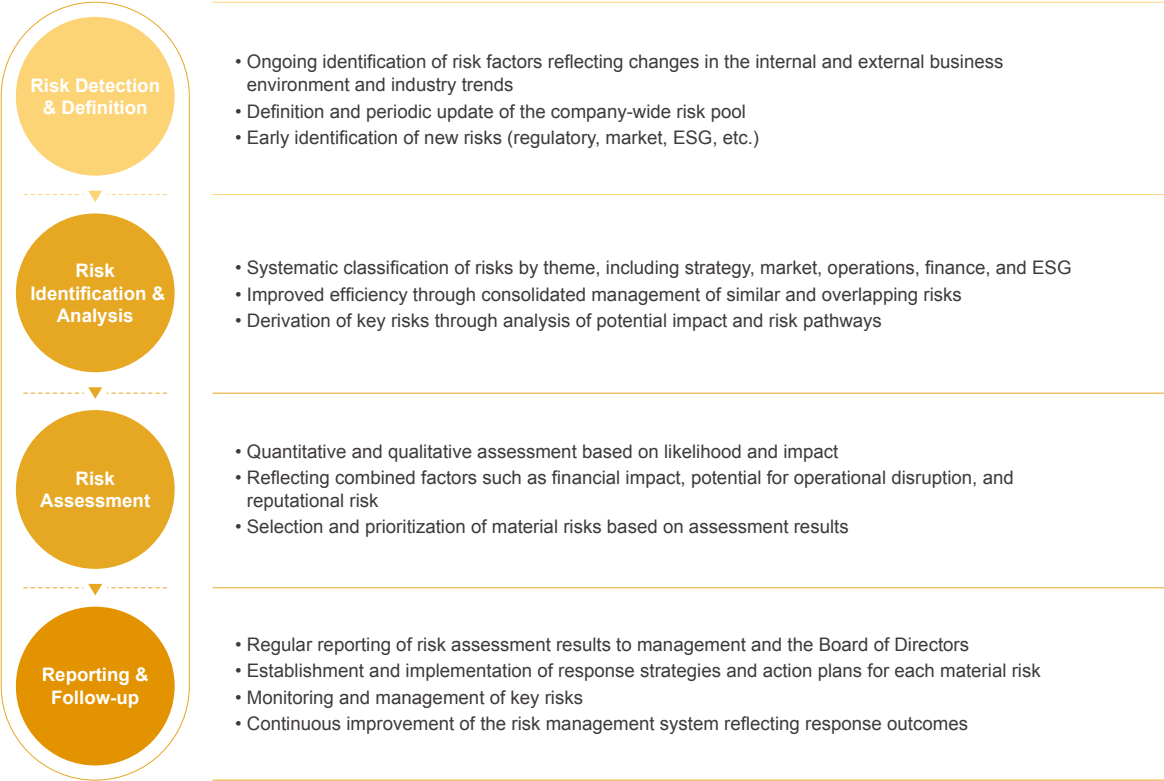


Key Risk Management Activities

Enterprise Risk Management Process

Hanwha TotalEnergies Petrochemical systematically manages risks that may arise across all areas of company operations, based on an enterprise risk management process spanning risk detection and definition, identification and analysis, assessment, and reporting with follow-up actions. At each stage, risks are analyzed both quantitatively and qualitatively and addressed according to priority, preventing risks in advance and supporting stable corporate operations.

Enterprise Risk Identification, Assessment, Management Process



Legal & Regulatory Compliance Risk Management

Non-compliance with domestic and international laws and policies can lead to long-term critical losses, such as damage to corporate value, beyond financial losses like fines. In an environment where environmental, social, and economic regulations are tightening, Hanwha TotalEnergies Petrochemical faithfully complies with laws by constantly monitoring the latest domestic and international regulation and government policy trends. The Company complies with environmental pollutant and greenhouse gas emission laws through facility improvements and transparent information disclosure, and creates a safe working environment through the installation of rest facilities, emergency drills, and the enhancement of toxic substance management systems. To prevent unfair trade risks such as anti-trust violations and collusion, Hanwha TotalEnergies Petrochemical implements an internal accounting control system and regularly conducts compliance audits and training for overseas business sites. In addition, for risks identified through constant monitoring of major legal and regulatory changes in the environmental, social, and economic sectors, the Company performs evaluations based on impact and likelihood of occurrence, and formulates and implements appropriate response measures such as responding to legislative revisions, revising internal policies and procedures, and training executives and employees. Hanwha TotalEnergies Petrochemical systematically manages related risks by continuously monitoring compliance with major laws and regulations.

Response to Major Environmental, Social, and Economic Regulations

Category	Relevant Laws	Response Activities	Completion Timeline
Environmental	Act on Air Quality Improvement in Air Control Zone	• Calculate and manage total allowable emissions	2024 (Every 5 years)
	Act on the Integrated Control of Pollutant-Discharging Facilities	• Install RTO* and upgrade relevant facilities	H2 2025
	Clean Air Conservation Act	• Improve systems to comply with air pollutant emission standards	H2 2026
Social	Chemicals Control Act • including the Designation of Toxic Substances	• Apply for permits and enhance handling facilities for newly designated toxic substances (e.g., cobalt oxide) and revised content levels (e.g., methanol)	H2 2026
	Rules on Occupational Safety and Health Standards	• Reinforce flame arrester systems on 4 storage tanks	H2 2025
	Enforcement Decree of the Act on Fire Prevention and Safety Management	• Align hazardous substance management with revised regulatory enforcement dates	H2 2023
	Serious Accidents Punishment Act	• Report outcomes of emergency response drills to local fire departments • Review site-specific requirements presented during fire prevention briefing and establish action plans accordingly	H2 2024
Economic	Monopoly Regulation and Fair Trade Act	• Analyze violation cases and address gaps in the safety management system	Annually
	Act on the Promotion of Mutually Beneficial Cooperation between Large Enterprises and SMEs	• Deliver job-specific compliance training for all employees	Annually
	Subcontracting Act	• Conduct on-site compliance inspections and training at overseas operations • Implement internal accounting control system	

* Regenerative Thermal Oxidizer (RTO): A combustion system designed to treat volatile organic compounds (VOCs) through thermal oxidation using heat recovery.



APPENDIX

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Sustainability Factbook

Economic

Economic and Business Performance

Creation of Economic Value

(Consolidated Basis)				
Category	Unit	2023	2024	2025
Revenue	KRW million	11,481,661	11,797,662	10,776,022
Pretax Income (Loss)	KRW million	-97,615	-349,475	-645,256
Net Income (Loss)	KRW million	-79,999	-271,302	-490,679

Distribution of Economic Value

Category		Unit	2023	2024	2025
Shareholders/ Investors	Dividends and Interest	KRW billion	150	102	109
	Salaries	KRW billion	209	205	199
Employees	Benefits	KRW billion	61	68	69
	Stock-based Incentives	Shares	-	-	-
Partners	Procurement and Service Costs	KRW hundred million	99,301	102,009	93,381
Government	Corporate Tax	KRW billion	-19*	-79*	-155*
Local Communities	Social Contribution Investment	KRW hundred million	97	122	118

* Reflects corporate income tax expense (or benefit) based on the consolidated financial statements.

Research and Development Investment

Category	Unit	2023	2024	2025
R&D Expenditure*	KRW million	47,310	51,070	50,417

* Total R&D expenditure before deduction of government subsidies.

Environmental

Environmental Management

GHG Emissions (Emissions Based on Allowance Surrender under K-ETS)

Category	Unit	2023	2024	2025
Total GHG Emissions (Scope 1 & 2)	tCO ₂ eq	4,571,101	4,679,895	4,538,806
Scope 1	tCO ₂ eq	3,786,004	3,926,152	3,878,408
Scope 2	tCO ₂ eq	785,097	753,743	660,398
Coverage of Regulated Emissions	%	100	100	100

* The 2023 emissions include temporary reductions resulting from facility shutdowns during a large-scale scheduled turnaround.

Energy

Category	Unit	2023*	2024**	2025
Total Energy Consumption***	TJ	105,075	106,382**	102,888
Total Direct Energy Consumption	TJ	86,524	88,837**	87,213
Fuel	TJ	86,524	88,837**	87,213
Total Indirect Energy Consumption****	TJ	18,551	17,545**	15,482
Electricity	TJ	15,133	15,500**	13,809
Steam	TJ	3,418	2,045	1,673
Total Renewable Energy Consumption	MWh	556	610	11,054
Self-generated Solar Power	MWh	556	610	1,000
Others (PPA)	MWh	0	0	10,054
Renewable Energy Consumption Ratio	%	0.01	0.01	0.10

* The 2023 figure includes a temporary reduction due to facility shutdowns during a large-scale scheduled turnaround.

** Correction of a data-entry error in 2024 energy consumption.

*** 2023–2024 based on the emission statement; 2025 calculated by combining statement-based data with the renewable electricity consumption deducted in the statement.

**** Based on the emission statement; renewable energy consumption is included (deducted).

Sustainability Factbook

Environmental Management

■■■■ Pollutants

Category		Unit	2023	2024	2025
Air Pollutants	Nitrogen Oxide (NOx) Emissions	ton	6,748	2,997*	2,620
	Sulfur Oxide (SOx) Emissions	ton	48	123	93
	Particulate Matter Emissions	ton	8	9	11
Water Pollutants	Total Organic Carbon (TOC)	ton	38	45	46
	Suspended Solids (SS) Emissions	ton	6	7	7

* Improved measurement accuracy from the expanded Tele-Monitoring System (TMS), and reductions from Ultra-Low NOx Burners (ULNB) installed at the NCC plant.

■■■■ Water Usage and Wastewater

Category		Unit	2023	2024	2025
Total Water Withdrawal		ton	25,644,173	27,474,568	27,890,855
Water Consumption*		ton	22,808,180	24,510,269	24,869,509
Water Reuse Volume**		ton	3,539,358	4,194,978	4,092,468
Wastewater Discharge Volume		ton	2,835,993	2,964,299	3,021,346
Proportion in High or Extremely High Water-Stress Areas		%	0	0	0
Number of Incidents of Non-compliance with Water Quality Permits, Standards, and Regulations		Cases	0	0	0

* Water consumption = water withdrawal – wastewater discharge.** Water reuse volume includes reused recovered condensate.

■■■■ Environmental Investment and Revenue

Category		Unit	2023	2024	2025
Circular* Raw Material Purchase Amount**		KRW million	728	2,580	2,083
Circular* Product Sales Revenue**		KRW million	2,131	5,302	7,231
Environmental Investment**		KRW million	94,048	20,071	10,382

* Raw materials and products certified under ISCC PLUS (Mass Balance approach) are classified as “Circular.” Under the Mass Balance approach, the volume of circular raw materials used is allocated across the overall production process based on a defined allocation methodology, and therefore may differ from the actual physical content of circular raw material in an individual product.

** Based on internal performance tracking.

■■■■ Waste

Category		Unit	2023	2024	2025
Total Waste Generated (General + Designated)		ton	19,527***	21,649	27,691
General Waste		ton	11,190	11,687	11,779
Designated Waste		ton	8,337***	9,962	15,912
Waste Recycled*		ton	13,914	15,670	22,678
General Waste		ton	6,240***	7,097**	7,914
Designated Waste		ton	7,674***	8,573***	14,764
Waste Recycling Rate (General + Designated)		%	71	72**	82
Waste Incinerated*		ton	1,732	2,331	1,999
General Waste		ton	1,088	942	921
Designated Waste		ton	644	1,389	1,078
Waste Landfilled*		ton	2,417	1,837	1,389
General Waste		ton	2,398	1,837	1,389
Designated Waste		ton	19	0	0
Waste Treated by Other Methods*		ton	1,464	1,811	1,625
General Waste		ton	1,464	1,811	1,555
Designated Waste		ton	0	0	69
Waste Treatment Cost		KRW hundred million	17	19	22

* All waste is outsourced for treatment without internal processing.

** Data restated due to a change in the aggregation method.

*** Data corrected due to an input error

■■■■ Environmental Training

Category		Unit	2023	2024	2025
Training for Workers Engaged in Hazardous Chemicals	Number of Completers	Persons	421	432	424
	Completion Rate	%	100	100	100

* Excluding handlers and office staff.

Sustainability Factbook

Social

Employee Status*

■■■■ Employment

Category		Unit	2023	2024	2025
Total Number of Employees		Persons	1,856	1,910	1,848
By Employment Type	Regular Employees (Number / %)	Persons / %	1,828/98	1,884/99**	1,826/99
	Male	Persons	1,677	1,726	1,660
	Female	Persons	151	158	166
	Non-regular Employees (Number / %)	Persons / %	28/2	26/1**	22/1
	Male	Persons	17	18	18
	Female	Persons	11	8	4
By Gender	Male	Persons / %	1,694/91	1,744/91	1,678/91
	Female	Persons / %	162/9	166/9	170/9
By Age Group	Under 30	Persons / %	316/17	347/18	305/17
	30s	Persons / %	614/33	641/34	646/35
	40s	Persons / %	295/16	297/16	318/17
	50s	Persons / %	596/32	586/31	540/29
	60 and above	Persons / %	35/2	39/2	39/2
Average Years of Service	Regular Employees	Years	15	15	14
	Non-regular Employees	Years	1	1	1
Average Employee Compensation	Male	KRW million	120	121	123
	Female	KRW million	76	87	86
Average Gender Pay Gap		%	37	28	30
Female Managers	Number of Female Managers (Manager or above)	Persons	51	55	58
	Proportion of Female Managers	%	11**	12	12
	Number of Female Executives	Persons	1	1	0
	Proportion of Female Executives	%	2.6	2.5	0
Number of Workers Who Are Not Employees***		Persons	151	161	155

* As of December 31, 2025, there were no part-time workers or non-guaranteed hours employees.
** Data corrected due to an input error.
*** Engaged in IT outsourcing, system maintenance, product packaging/shipping, site cleaning, office support, etc.

■■■■ Employment of Underrepresented Groups

Category		Unit	2023	2024	2025
Employment of Underrepresented Groups (Regular + Non-regular)		Persons / %	90/5	92/5	86/4
Persons with Disabilities*		Persons	40	43	39
Veterans		Persons	50	49	47
Foreign Nationals		Persons	0	0	0

* Based on the number reported to the Korea Employment Agency for Persons with Disabilities.

■■■■ Social Dialogue

Category		Unit	2023	2024	2025
Labor-Management Council	Regular Employees	Meetings Held	4	4	4
	Non-regular Employees	Agenda Items	17	12	9
Proportion of Employees Covered by Collective Bargaining Agreements*		%	57	57	57

* While 57% of employees are legally covered by the collective bargaining agreement, the working conditions stipulated therein are applied to all employees.

■■■■ New Hires

Category		Unit	2023	2024	2025
Total Number of New Hires (Domestic only)		Persons	143	165	137
By Employment Type	Regular Employees	Persons	129	149	118
	Non-regular Employees	Persons	14	16	19
By Gender	Male	Persons	122	146	128
	Female	Persons	21	19	9
By Age Group	Under 30	Persons	104	112*	95
	30s	Persons	21	30	18
	40s	Persons	6	14	6
	50s	Persons	3	4	3
	60 and above	Persons	9	5	15

* Data corrected due to an input error.

Sustainability Factbook

Employee Status

Employee Training and Evaluation

Category			Unit	2023	2024	2025
Training Expenses		Total Training Expenses	KRW million	2,497	2,832	3,674
		Training Expenses per Employee	KRW thousand	1,348	1,483	1,988
Training Hours*		Total Training Hours	Hours	222,762	234,392	165,849
		Training Hours per Employee**	Hours	120	123	90
Disability Awareness Training		Number of Completers	Persons	1,803	1,726	1,734
		Completion Rate	%	100	100	100
Workplace Harassment Prevention Training		Number of Completers	Persons	1,803	1,726	1,734
		Completion Rate	%	100	100	100
Sexual Harassment Prevention Training		Number of Completers	Persons	1,803	1,726	1,734
		Completion Rate	%	100	100	100
Number / Portion*** of Employees Who Received Performance Evaluations	By Employment Type	Regular Employees	Persons / %	1,656/100	1,731/100	1,788/100
		Non-regular Employees	Persons / %	38/100	32/100	35/100
	By Gender	Male	Persons / %	1,566/100	1,623/100	1,653/100
		Female	Persons / %	128/100	140/100	170/100

* All internal training hours, including mandatory and job-related training, have been managed through a system based platform.

** Calculated by dividing 'total annual training hours' by 'the number of training target employees (excluding those on leave of absence, sick leave, or who resigned during the training period)'.

*** Calculated by dividing the 'number of employees who received performance evaluations' by the 'number of employees subject to performance evaluation (excluding those on leave of absence, sick leave, or who resigned during the evaluation period, as well as new hires and mid-career hires)'.

Parental Leave

Category		Unit	2023	2024	2025
Number of Employees Who Took Parental Leave	Male	Persons	7	9	19
	Female	Persons	4	7	14
Number of Employees Who Returned After Parental Leave	Male	Persons	5	7	11
	Female	Persons	3	3	8
Return Rate After Parental Leave*	Male	%	71	78	58
	Female	%	75***	43	57
Retention Rate After 12 Months of Return**	Male	%	100	100	100
	Female	%	100	100	100

* The return rate is calculated by dividing the 'number of employees who returned from parental leave in the given year' by the 'number of employees who took parental leave in the given year.'

** The number of employees who returned to work in the previous year and have remained employed for 12 months or longer.

*** Data corrected due to a data entry error.

Work-Life Balance

Category		Unit	2023	2024	2025
Number of Employees Using Reduced Working Hours for Childcare		Persons	7	13	15
Number of Employees Using Spouse's Childbirth Leave		Persons	52	48	54
Number of Employees Using Staggered Working Hours		Persons	71	198	102

Safety and Health Management

Employee Health and Safety

Category		Unit	2023	2024	2025
Employee Industrial Accidents	Number of Fatalities	Cases	0	0	0
	Number of Accidents*	Cases	0	2	7
Partner Company Industrial Accidents	Number of Fatalities	Cases	0	0	0
	Number of Accidents*	Cases	3	2	0
Employee Health Checkups (Comprehensive + General)	Number of Participants	Persons	1,621	1,924	1,850**
	Participation Rate	%	100	100	100

* Based on industrial accident reports filed with the Ministry of Employment and Labor.

** Based on the number who underwent checkups during the reporting period (including employees who joined or left during the year).

Social Contribution

Volunteer Participation

Category		Unit	2023	2024	2025
Social Contribution Activities	Total Volunteer Hours	Hours	7,366*	8,762*	7,833
	Volunteer Hours per Person	Hours	3.96*	4.58*	4.23
	Volunteer Participation Rate	%	47*	51*	42

* 2023–2024 restated due to a change in the calculation basis.

Sustainability Factbook

Governance

Board of Directors

Board Status

Category		Unit	2023	2024	2025
Composition of Board	Inside Directors	Persons	3	3	3
Number of Board Meetings Held		Meetings	6	9	11
Board Agenda Items		Cases	37	40	44
Board Attendance Rate	Overall Director Attendance Rate	%	81	95	98
	Attendance Rate (Excluding Retired Directors)	%	100	100	100
Registered Directors	Headcount	Persons	6	6	6
	Total Compensation	KRW million	3,920	2,492	1,567
	Average Compensation per Person	KRW million	653	415	261
Audit (Committee) Members	Headcount	Persons	2	2	2
Compensation Committee	Number of Meetings Held	Meetings	1	1	1
	Attendance Rate	%	100	100	100
Shareholders with 5% or More	Hanwha Impact Corporation	%	50	50	50
	TotalEnergies Holdings UK Limited	%	50	50	50

Ethics and Compliance

Category		Unit	2023	2024	2025
Total Number of Legal/Regulatory Violations		Cases	0	3	0
Environment		Cases	0	1	0
Safety & Health		Cases	0	2	0
Others (Fair Trade, Anti-corruption, etc.)		Cases	0	0	0
Monetary Sanctions for Legal/Regulatory Violations		KRW million	0	9	0
Environment		KRW million	0	2	0
Safety & Health		KRW million	0	7	0
Others (Fair Trade, Anti-corruption, etc.)		KRW million	0	0	0

Information Security

Category		Unit	2023	2024	2025
Information Security Violations	Total Number of Substantiated Complaints Concerning Breaches of Privacy	Cases	0	0	0
	Number of Personal Data Leaks	Cases	0	0	0
	Number of Improvements Based on Internal Information Security Assessment	Cases	7	5	4
Information Security Training	Number of Completers*	Persons	1,732	1,794	1,849
	Completion Rate	%	100	100	100

* Based on the number of employees who completed training during the reporting period, including those who joined or left during the year.

GRI Content Index

Statement of use	Hanwha TotalEnergies Petrochemical has reported its sustainability performance and data in accordance with the GRI Standards for the period from January 1, 2025 to December 31, 2025
GRI 1 used	GRI 1: Foundation 2021
Applicable GRI Sector Standards	GRI 11: Oil & Gas Sector 2021* (For the chemical industry, no applicable Sector Standard has been issued as of the reporting date)

GRI 2: General Disclosures 2021

GRI Standard	Disclosure		Location
GRI 2: General Disclosures 2021			
The organization and its reporting practices	2-1	Organizational details	6-7
	2-2	Entities included in the organization’s sustainability reporting	2
	2-3	Reporting period, frequency and contact point	2
	2-4	Restatements of information	80-84 (Notes have been provided below the relevant data for any revised figures)
	2-5	External assurance	93
Activities and workers	2-6	Activities, value chain and other business relationships	8-11
	2-7	Employees	82
	2-8	Workers who are not employees	82
Governance	2-9	Governance structure and composition	16-19
	2-10	Nomination and selection of the highest governance body	16
	2-11	Chair of the highest governance body	16
	2-12	Role of the highest governance body in overseeing the management of impacts	18-19
	2-13	Delegation of responsibility for managing impacts	18-19
	2-14	Role of the highest governance body in sustainability reporting	18-19
	2-15	Conflicts of interest	16
	2-16	Communication of critical concerns	18
	2-17	Collective knowledge of the highest governance body	16-17
	2-18	Evaluation of the performance of the highest governance body	(Information unavailable / incomplete)
	2-19	Remuneration policies	2025 Business Report p.219
	2-20	Process to determine remuneration	2025 Business Report p.219
Strategy, policies and practices	2-21	Annual total compensation ratio	(Confidentiality constraints)
	2-22	Statement on sustainable development strategy	5
	2-23	Policy commitments	13
	2-24	Embedding policy commitments	13
	2-25	Processes to remediate negative impacts	60, 74, 77-78
	2-26	Mechanisms for seeking advice and raising concerns	60, 74
	2-27	Compliance with laws and regulations	84, 2025 Business Report p.259-260
	2-28	Membership associations	94
Stakeholder engagement	2-29	Approach to stakeholder engagement	23, 64
	2-30	Collective bargaining agreements	82

* Among the GRI Sector Standards, the Company referred to GRI 11: Oil and Gas Sector 2021 for activities related to its refining and energy businesses.

GRI Content Index

GRI 3: Material Topics 2021

GRI Standard	Disclosure		Location	Sector REF #
GRI 3: Material Topics 2021				
GRI 3: Material Topics 2021	3-1	Process to determine material topics	20	
	3-2	List of material topics	21	
Material Topic 1. Climate Change Response				
GRI 3: Material Topics 2021	3-3	Management of material topics	22	S11.1.1, S11.2.1, S11.3.1
GRI 201: Economic Performance 2016	201-2	Financial implications and other risks and opportunities due to climate change	28-29	S11.2.2
GRI 302: Energy 2016	302-1	Energy consumption within the organization	80	S11.1.2
GRI 305: Emissions 2016	305-1	Direct (Scope 1) GHG emissions	80	S11.1.5
	305-2	Energy indirect (Scope 2) GHG emissions	80	S11.1.6
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	81	S11.3.2
Material Topic 2. Sustainable Product Development and the Circular Economy				
GRI 3: Material Topics 2021	3-3	Management of material topics	22	Not applicable to GRI 11
Organization-specific indicators	-	Revenue from circular products	81	Not applicable to GRI 11
	-	Water recycling	81	Not applicable to GRI 11
GRI 306: Waste 2020	306-4	Waste diverted from disposal	81	S11.5.5
Material Topic 3. Compliance Management				
GRI 3: Material Topics 2021	3-3	Management of material topics	22	Not applicable to GRI 11
Organization-specific indicators	-	Total Number of Incidents of Non-compliance with Laws and Regulations (Sanctions Imposed by Investigative, Judicial, and Administrative Authorities)	84, 2025 Business Report p.259-260	Not applicable to GRI 11
	-	Monetary Value of Fines and Penalties for Non-compliance with Laws and Regulations (Sanctions Imposed by Investigative, Judicial, and Administrative Authorities)	84, 2025 Business Report p.259-260	Not applicable to GRI 11
GRI 206: Anti-competitive Behavior 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	84, 2025 Business Report p.259-260	S11.19.2
GRI 418: Customer Privacy 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	84	Not applicable to GRI 11

GRI Content Index

General Reporting Topics

GRI Standard	Disclosure		Location	Sector REF #
General Reporting Topics				
Pollutant Management				
GRI 306: Waste 2020	306-1	Waste generation and significant waste-related impacts	49	S11.5.2
	306-2	Management of significant waste-related impacts	49	S11.5.3
	306-3	Waste generated	81	S11.5.4, S11.6.2
	306-5	Waste directed to disposal	81	S11.5.6
GRI 303: Water and Effluents 2018	303-1	Interactions with water as a shared resource	48	S11.6.2
	303-2	Management of water discharge-related impacts	48	S11.6.3
	303-3	Water withdrawal	81	S11.6.4
	303-4	Water discharge	81	S11.6.5
	303-5	Water consumption	81	S11.6.6
Occupational Health and Safety				
GRI 403: Occupational Health and Safety 2018	403-1	Occupational health and safety management system	53-55	S11.9.2
	403-3	Occupational health services	57	S11.9.4
	403-4	Worker participation, consultation, and communication on occupational health and safety	53, 56	S11.9.5
	403-5	Worker training on occupational health and safety	56	S11.9.6
	403-6	Promotion of worker health	57	S11.9.7
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	67	S11.9.8
Employee Training and Capability Development				
GRI 404: Training and Education 2016	404-2	Programs for upgrading employee skills and transition assistance programs	62	S11.10.7
	404-3	Percentage of employees receiving regular performance and career development reviews	62, 83	Not applicable to GRI 11
Employee Human Rights and Diversity				
GRI 405: Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	17, 82	S11.11.5
Ethical Business Practices				
Organization-specific indicators	-	Number of employees completing ethics management and common compliance training	73	Not applicable to GRI 11
Community Impact Management				
GRI 203: Indirect Economic Impacts 2016	203-1	Infrastructure investments and services supported	68-70	S11.14.4
Supplier Sustainability Management				
Organization-specific indicators	-	Rate of inclusion of SHE-related obligations and responsibilities in partner contracts	67	Not applicable to GRI 11

GRI Content Index

Indicators from the GRI Sector Standards Not Included in Material Topics

GRI Sector Standards	Reason for Not Being Selected as a Material Topic and Current Management Status
Topic S11.4 Biodiversity	Although not selected as a material topic due to a low level of related impact based on the materiality assessment results, Hanuha TotalEnergies Petrochemical recognizes the need to protect biodiversity in conducting its business and is carrying out ecosystem conservation activities, including a nearby marine restocking (fish stocking) project.
Topic S11.7 Closure and rehabilitation	This is not applicable as there are currently no sites subject to closure, and therefore it was not selected as a material topic; however, regular site environmental impact assessments are conducted for sites currently in operation.
Topic S11.8 Asset integrity and critical incident management	Although not selected as a material topic due to a relatively low level of related impact based on the materiality assessment results, Hanuha TotalEnergies Petrochemical operates a safety and health management system consistent with the GRI 403 (Occupational Health and Safety), and has established immediate response procedures in the event of an incident (emergency response plans, incident cause investigation, and recurrence prevention measures). Regular safety inspections and facility maintenance programs are also in operation.
Topic S11.12 Forced labor and modern slavery	Although not selected as a material topic due to a low level of related impact based on the materiality assessment results, Hanuha TotalEnergies Petrochemical complies with domestic labor laws and the core conventions of the International Labour Organization (ILO), and requires suppliers, through the Supplier Code of Conduct, to participate in the company's human rights management.
Topic S11.13 Freedom of association and collective bargaining	Although not selected as a material topic due to a low level of related impact based on the materiality assessment results, Hanuha TotalEnergies Petrochemical maintains labor relations policies with reference to the GRI 407 (Freedom of Association and Collective Bargaining) standard and regularly operates a labor-management council. Respect for freedom of association is also explicitly stated in the Supplier Code of Conduct.
Topic S11.15 Local communities	Although not selected as a material topic due to a low level of related impact based on the materiality assessment results, Hanuha TotalEnergies Petrochemical contributes to local economic development through community investment and social contribution activities.
Topic S11.16 Land and resource rights	Although not selected as a material topic due to a low level of related impact based on the materiality assessment results, Hanuha TotalEnergies Petrochemical strictly complies with domestic land-related laws and real estate acquisition regulations and follows legitimate contractual procedures and compensation systems when acquiring land for business purposes.
Topic S11.17 Rights of Indigenous Peoples	Although not selected as a material topic due to a low level of related impact based on the materiality assessment results, there have been no reported cases of indigenous rights violations at Hanuha TotalEnergies Petrochemical business sites and areas of operation during the current reporting period. Should there be an expansion of the overseas business portfolio or a change in the level of stakeholder concern, this topic will be reviewed during future materiality assessments and, if necessary, incorporated as a material topic with expanded disclosure.
Topic S11.18 Conflict and security	Although not selected as a material topic due to a low level of related impact based on the materiality assessment results, Hanuha TotalEnergies Petrochemical operates on-site security personnel in accordance with relevant laws and internal operating procedures and implements security management guidelines based on the principle of respect for human rights.
Topic S11.21 Payments to governments	Although not selected as a material topic due to a low level of related impact based on the materiality assessment results, Hanuha TotalEnergies Petrochemical complies with requirements under relevant laws, including tax payments and audit reporting.
Topic S11.22 Public policy	This is legally prohibited under Article 31 of the Political Funds Act of the Republic of Korea, and Hanuha TotalEnergies Petrochemical complies with this provision.

SASB / TCFD Index

SASB Index - Chemicals

Topics	Accounting Metrics	Code	Unit	2025 Data
Greenhouse Gas Emissions	Gross global Scope 1 emissions	RT-CH-110a.1	tCO ₂ -eq	3,878,408
	Percentage covered under emissions-limiting regulations		%	100
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emission-reduction targets, and an analysis of performance against those targets	RT-CH-110a.2	-	p.31-32, 35 (Achieving Carbon Reduction)
Air Quality	Air emissions of the following pollutants:			
	(1) NO _x (excluding N ₂ O)	RT-CH-120a.1	Tons	2,620
	(2) SO _x		Tons	93
Energy Management	(1) Total energy consumed	RT-CH-130a.1	TJ	102,888
	(2) Percentage grid electricity		%	13.5
	(3) Percentage renewable		%	0.10
	(4) Total self-generated energy		MWh	1,000
	(1) Total water withdrawn		Tons	27,890,855
Water Management	Percentage in regions with High or Extremely High Baseline Water Stress	RT-CH-140a.1	%	0
	(2) Total water consumed		Tons	24,869,509
	Percentage in regions with High or Extremely High Baseline Water Stress		%	0
	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	RT-CH-140a.2	Cases	0
	Description of water management risks and discussion of strategies and practices to mitigate those risks	RT-CH-140a.3	-	p.48 (Water Stress Analysis), p.38 (Expanding Water Reuse and Recycling)
				15,912
Hazardous Waste Management	Amount of hazardous waste generated	RT-CH-150a.1	Tons	93
Community Relations	Percentage recycled		%	
Occupational health and safety for the entire workforce	Discussion of engagement processes to manage risks and opportunities associated with community interests	RT-CH-210a.1	-	p.68-70 (Social Contribution)
	Total recordable incident rate (TRIR) for direct employees	RT-CH-320a.1	Number of incidents per 1 million hours worked	1.85
	Fatality rate for direct employees		Number of incidents per 1 million hours worked	0
	Total recordable incident rate (TRIR) for contract employees		Number of incidents per 1 million hours worked	0.16
	Fatality rate for contract employees		Number of incidents per 1 million hours worked	0
	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	RT-CH-320a.2	-	p.57 (Health and Wellness Management)
	Revenue from products designed for use-phase resource efficiency	RT-CH-410a.1	KRW	p.81 (Eco-friendly Product Sales Revenue), p.39-41 (Circular Products)
Product Design for Use-phase Efficiency	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact	RT-CH-410b.2	-	p.50-51 (Hazardous Substance Management)
Chemical Safety & Environmental Stewardship	Percentage of products by revenue that contain genetically modified organisms (GMOs)	RT-CH-410c.1	%	Not applicable
Genetically Modified Organisms	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	RT-CH-530a.1	-	p.33 (Climate Engagement Activities)
Management of the Legal & Regulatory Environment	Process Safety Incidents Count (PSIC)	RT-CH-540a.1	Cases	0
Process Safety, Emergency Preparedness & Response	Process Safety Total Incident Rate (PSTIR)		Number of incidents per 200,000 hours worked	0
	Process Safety Incident Severity Rate (PSISR)		Number of incidents per 200,000 hours worked	0
	Number of transport incidents (road/rail/marine)		Cases	0
Activity Metrics	Production of base chemicals	RT-CH-540a.2	Thousands tons	5,780
	Production of polymer (resin) products	RT-CH-000.A	Thousands tons	2,744
	Production of energy products		Thousands tons	1,791

SASB / TCFD Index

TCFD Index		
Category	Recommendation	Page
Governance	a) Describe the board's oversight of climate-related risks and opportunities	p.26
	b) Describe management's role in assessing and managing climate-related risks and opportunities	p.26
Strategy	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term	p.28
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning	p.28-30
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	p.30
Risk Management	a) Describe the organization's processes for identifying and assessing climate-related risks	p.34
	b) Describe the organization's processes for managing climate-related risks	p.34
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management	p.34
Metrics and Targets	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process	p.35
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	p.35
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	p.35

UN SDGs Index

Hanwha TotalEnergies Petrochemical aligns the direction of its sustainability management with the targets of the UN Sustainable Development Goals (SDGs), pursuing diverse activities to contribute to achieving these shared global goals.

UN SDGs		Targets	Key Activities	Location
	Good Health and Well-being	3.9 - By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination 3.d - Strengthen the capacity for early warning, risk reduction and management of national and global health risks	- Reducing hazardous chemical emissions (VOC, NOx, wastewater) - Establishing process safety (PSM) and incident response systems - Proactive protection of community health, occupational health support	p.43-51, 57-58, 69-70
	Quality Education	4.4 - By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship 4.7 - By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship 4.a - Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	- Training engineers and process technology personnel - Prohibiting discrimination in hiring and promotion - Diversity policies	p.61-62, 69
	Gender Equality	5.1 - End all forms of discrimination against all women and girls everywhere 5.5 - Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making 5.c - Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls	- Expanding female leadership - Providing fair hiring and promotion opportunities - Fostering an organizational culture based on diversity and inclusion	p.62-64
	Decent Work and Economic Growth	8.5 - By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value 8.7 - Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of child labour 8.8 - Protect labour rights and promote safe and secure working environments for all workers	- Safe employment and fair compensation - Managing partner companies' labor rights (prohibition of child and forced labor) - Zero industrial accidents goal	p.52-56, 59-65, 67
	Industry, Innovation and Infrastructure	9.1 - Develop quality, reliable, sustainable and resilient infrastructure to support economic development and human well-being, with a focus on affordable and equitable access for all 9.4 - By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes 9.5 - Enhance scientific research, upgrade the technological capabilities of industrial sectors, encouraging innovation and substantially increasing the number of research and development workers	- Transitioning to low-carbon processes (electrification, CCUS) - Circular materials (recycled plastics, bio-based materials) - Smart factories, digital twins - Optimizing processes through data and AI	p.31-33, 36-40, 54, 58
	Responsible Consumption and Production	12.2 - By 2030, achieve the sustainable management and efficient use of natural resources 12.4 - By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle 12.5 - By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	- Improving energy use efficiency and process efficiency - Operating a chemical review system and reducing hazardous chemical use - Reducing waste and establishing a resource circulation system	p.31-33, 38-40, 44, 50-51
	Climate Action	13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters 13.2 - Integrate climate change measures into national policies, strategies and planning 13.3 - Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning 13.a - Fulfil the commitment undertaken by developed-country parties to mobilize climate finance and support implementation	- Establishing a carbon reduction roadmap - Managing climate risks (TCFD) - Internal carbon awareness and education - Renewable energy (PPA), low-carbon fuels	p.26-35
	Peace, Justice and Strong Institutions	16.5 - Substantially reduce corruption and bribery in all their forms 16.6 - Develop effective, accountable and transparent institutions at all levels 16.7 - Ensure responsive, inclusive, participatory and representative decision-making at all levels 16.10 - Ensure public access to information and protect fundamental freedoms	- Anti-corruption and compliance - ESG disclosure transparency (ISSB, TCFD) - Board independence, ESG Committee - Stakeholder communication and ESG information disclosure	p.16-17, 23, 72-76

Greenhouse Gas Assurance Statement

PURPOSE & SCOPE

The purpose of this verification is to independently assess the following based on objective evidence.

- Conformity with the verification criteria
- The accuracy of the GHG emissions and removals reported by the company

The scope of this verification covers the GHG emissions report provided by the company, as well as all facilities and emission sources under the operational control of the company.

STANDARDS

- Guidelines on Emission Reporting and Certification under the GHG Emissions Trading Scheme (Ministry of Environment Notice No.2025-64)
- Verification Guidelines for the Operation of the GHG Emissions Trading Scheme (Ministry of Environment Notice No.2025-165)
- Guidelines on the Operation of Greenhouse Gas and Energy Target Management System (Ministry of Environment Notice No.2025-165)
- IPCC Guidelines for National Greenhouse Gas Inventories (2006)

PROCEDURE

KMR conducted on-site verification based on a risk analysis approach and data evaluation, and assessed the appropriateness of the data and parameters applied in the calculation of GHG emissions based on objective evidence. KMR verified the GHG emissions for the reporting period using reasonable methods in accordance with the verification guidelines.

INDEPENDENCE

KMR has no conflict of interest with the company and does not perform verification with biased opinions or perspectives. KMR derived an independent and objective verification conclusion based on the verification criteria, and reviewed the entire verification process through an independent review.

LIMITATION

KMR verified the relevant reports, information, and data provided by the company through sampling and, where applicable, full inspection methods. However, there are inherent limitations, and differences in interpretation regarding conformity may exist. Although efforts were made to conduct a thorough verification in accordance with the verification criteria, undetected errors, omissions, or misstatements may still exist, which are presented as limitations of the verification.

GHG Emissions(Base year reference emissions for allocation in the next planning period)

Unit : GHG (ton CO ₂ _eq)			
YEAR \ GHG	Scope 1	Scope 2	Total
2025	3,910,648.523	660,399.196	4,571,046

*The total emissions value may differ by ±1 ton CO₂_eq due to rounding during the aggregation process.

Emissions by GHG Type

Unit : ton CO ₂ _eq/year						
GHG	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆
2025	4,562,321	1,975	6,752	0	0	0
						Total
						4,571,048

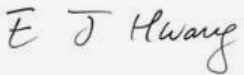
RESULTS

KMR prepared the GHG report in accordance with the agreed verification criteria.

- The verification of GHG emissions was conducted to achieve a reasonable level of assurance in accordance with the verification criteria.
- It has been verified that the data were properly collected, prepared, and reported in accordance with the verification criteria, and that emissions from key emission sources (accounting for 95% of total GHG emissions) have been calculated and reported without omission.
- Materiality: Meets the threshold of less than 5%

It has been verified that emissions from key emission sources have been calculated and reported without omission. The verification confirms conformity with the verification objectives, scope, and criteria, and an “unmodified” opinion is expressed.

June 18, 2026

CEO 

※ The company is responsible for preparing verification data in accordance with relevant laws and standards, and KMR's responsibility is limited to the company under the agreed contractual terms. KMR does not assume responsibility for any other decisions, such as investment decisions, made based on this verification statement.

※ The company shall comply with the use of certification marks and logos in accordance with the agreement with KMR.

Third-Party Assurance Statement

Dear Management and Stakeholders of Hanwha TotalEnergies Petrochemical

Introduction

Korean Standards Association (“KSA”) was commissioned by Hanwha TotalEnergies Petrochemical (“the Company”) to perform a third-party Assurance Engagement of ‘Hanwha TotalEnergies Petrochemical Sustainability Report’ (“the Report”). KSA presents independent opinions as follows as a result of the feasibility of the data contained in this Report. The Company has sole responsibility for the content and performance contained in this Report.

Independence

As an independent assurance agency, KSA does not have any kind of commercial interest in businesses of the Company apart from undertaking a third-party assurance on the Report. KSA has no other contract with the Company that may undermine credibility and integrity as an independent assurance agency.

Assurance Standards: AA1000AS v3

Assurance Level and Type: Moderate, Type2

Note: Moderate assurance has a lower level of confidence than high assurance because it is based on limited evidence.

Assurance Scope

The assurance scope includes systems and activities such as sustainability management policies, goals, businesses, standards, and achievements of the Company during the reporting period. While the Company’s environmental and social data, as well as financial data in a broad sense, was verified, the scope of review concerning stakeholder engagement was limited to the materiality assessment process.

- in adherence with the four principles of AA1000AP(AccountAbility Principles) 2018
- in accordance with GRI Standards 2021

(Topic Standards)

201-2, 203-1, 403-1, 403-3, 403-4, 403-5, 403-6, 403-7, 404-2, 404-3, 405-1, 418-1, 302-1, 303-1, 303-2, 303-3, 303-4, 303-5, 305-1, 305-2, 305-7, 306-1, 306-2, 306-3, 306-4, 306-5, Circular product sales revenue, Water recycling

Assurance Methodology

KSA used the following methods to gather information, documents, and evidence with respect to the assurance scope.

- Confirmation of stakeholder engagement and materiality assessment process by the sustainability expert.
- Verification of environmental information disclosure data and information by the environmental expert.
- Examination of internal documents and basic materials.

Assurance limitations

KSA assumed that the data and evidence provided by the Company were complete and sufficient. KSA provided limited assurance through data inquiry and analysis as well as limited sampling methods.

Assurance Results and Opinions

KSA reviewed the draft version of this Report within the scope of this assurance and presented our opinions as an assurance provider. Modifications were made to the Report content if deemed necessary. KSA was not aware of any suspicions of significant errors or inappropriate descriptions in this Report as a result of our Assurance Engagement. As such, KSA presents our opinions of the ‘Hanwha TotalEnergies Petrochemical Report’ as follows.

Four principles of AA1000AP (AccountAbility Principles) 2018

Inclusivity

Has the Company engaged its stakeholders in strategically responding to sustainability?

KSA believes the Company is aware of the importance of stakeholder engagement and is making an all-out effort to establish a process that will increase their engagement. The Company has selected stakeholders including customers, suppliers, local communities, financial institutions, investors, government, public institutions, and employees and has communication channels for each group to receive diverse feedback and opinions.

Materiality

Has the Company included material information in the Report to help stakeholders make informed decisions?

KSA is not aware of any significant omissions or exclusions of data that are material to stakeholders. KSA verified that the Company conducted a materiality assessment with issues identified from analyses of internal and external environments and reported according to the result.

Responsiveness

Has the Company appropriately responded to stakeholder requirements and interest in this Report?

KSA verified that the Company responded to stakeholders’ needs and interests by reflecting stakeholders’ opinions in the Report. KSA is not aware of any evidence that the Company’s response to significant issues of stakeholders was reported inappropriately.

Impact

Has the Company appropriately monitored its impact on the stakeholders?

KSA verified that the Company is monitoring and assessing its impact on the stakeholders by conducting an enhanced verification of its standard business activities. Furthermore, it has been verified that the Company appropriately publishes its findings in the Report.

Reliability and quality of specified performance

Has the Company appropriately collected and disclosed specified performance information based on a reliable process?

The assurance provider performed a reliability assurance of the sustainability performance information on the subject of Type 2 assurance. To assure this information, interviews were conducted with relevant personnel, and it was determined that the performance information disclosed in the Report was collected and disclosed based on a reliable process and evidence. Additionally, no evidence was found indicating that specific sustainability information was inaccurately reported.

June 2026
Dong Min Moon

KSA Chairman & CEO



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The Korean Standards Association (KSA), established as a special corporation in accordance with the Law for Industrial Standardization in 1962, serves as a knowledge service provider that distributes and disseminates such services as industrial standardization, quality management, sustainability management, KS certification and ISO certification. The KSA is committed to the sustainable development of Korean society as an ISO 26000 national secretary, AA1000 assurance provider, KSI (Korea Sustainability Index) operator, and as an assurance provider of the Korean government’s greenhouse gas energy target management system.

Key Associations and Memberships

Membership in Key Associations

Korea Industrial Safety Association, Western Chungnam Branch	The Korean Union of Chemical Science and Technology Societies	Korea Economic Research Institute (KERI)	Korea Chemicals Management Association	The Federation of Korean Industries
Environmental Conservation Institute, Daejeon-Chungnam Branch	Korea International Trade Association (KITA)	Seosan Chamber of Commerce and Industry	Korea Industrial Technology Association	Korean Standards Association (KSA)
Korea Plastic Pipe Research Society	Korea Chemical Industry Association	The National Quality Master Association		

