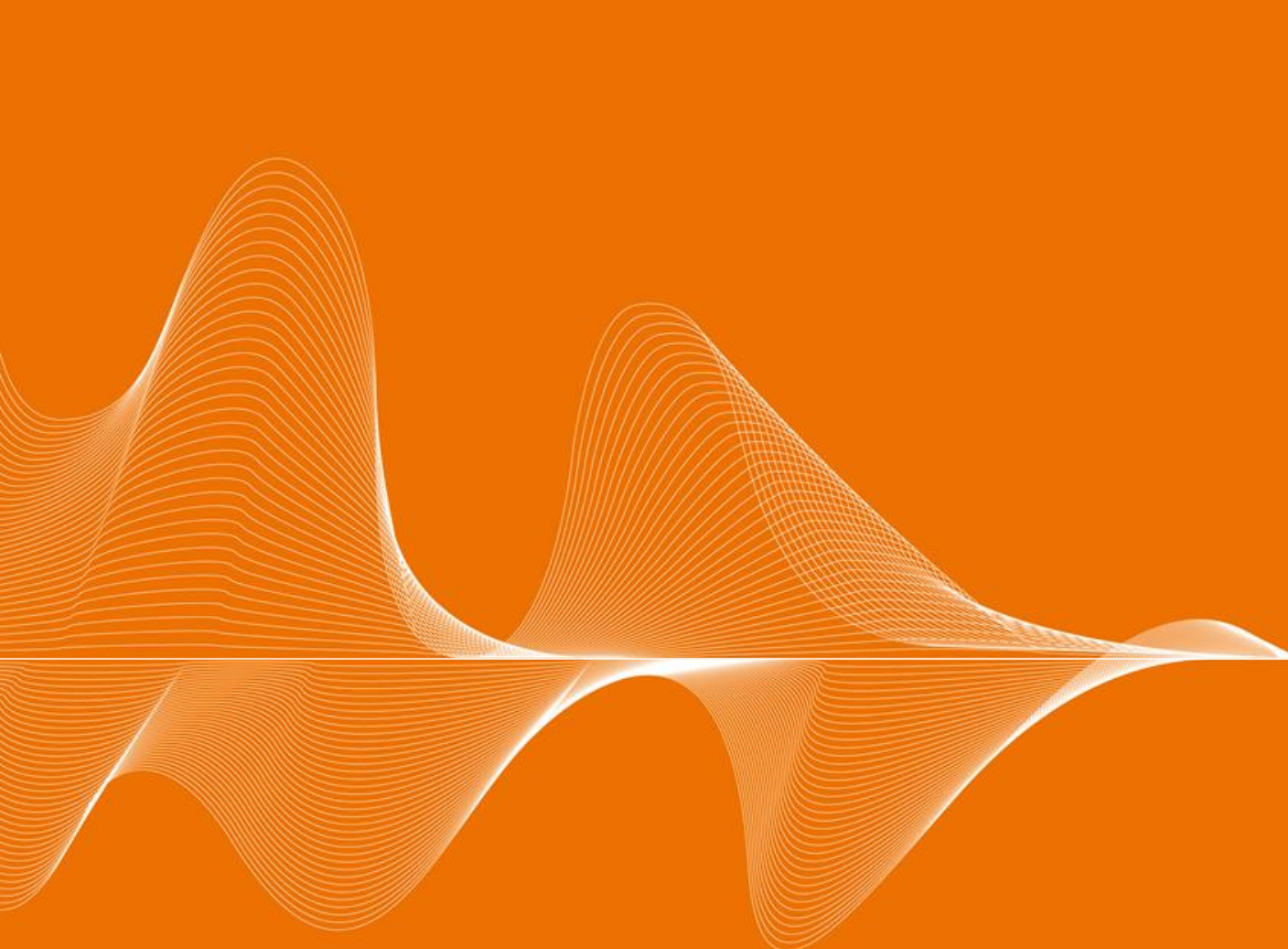
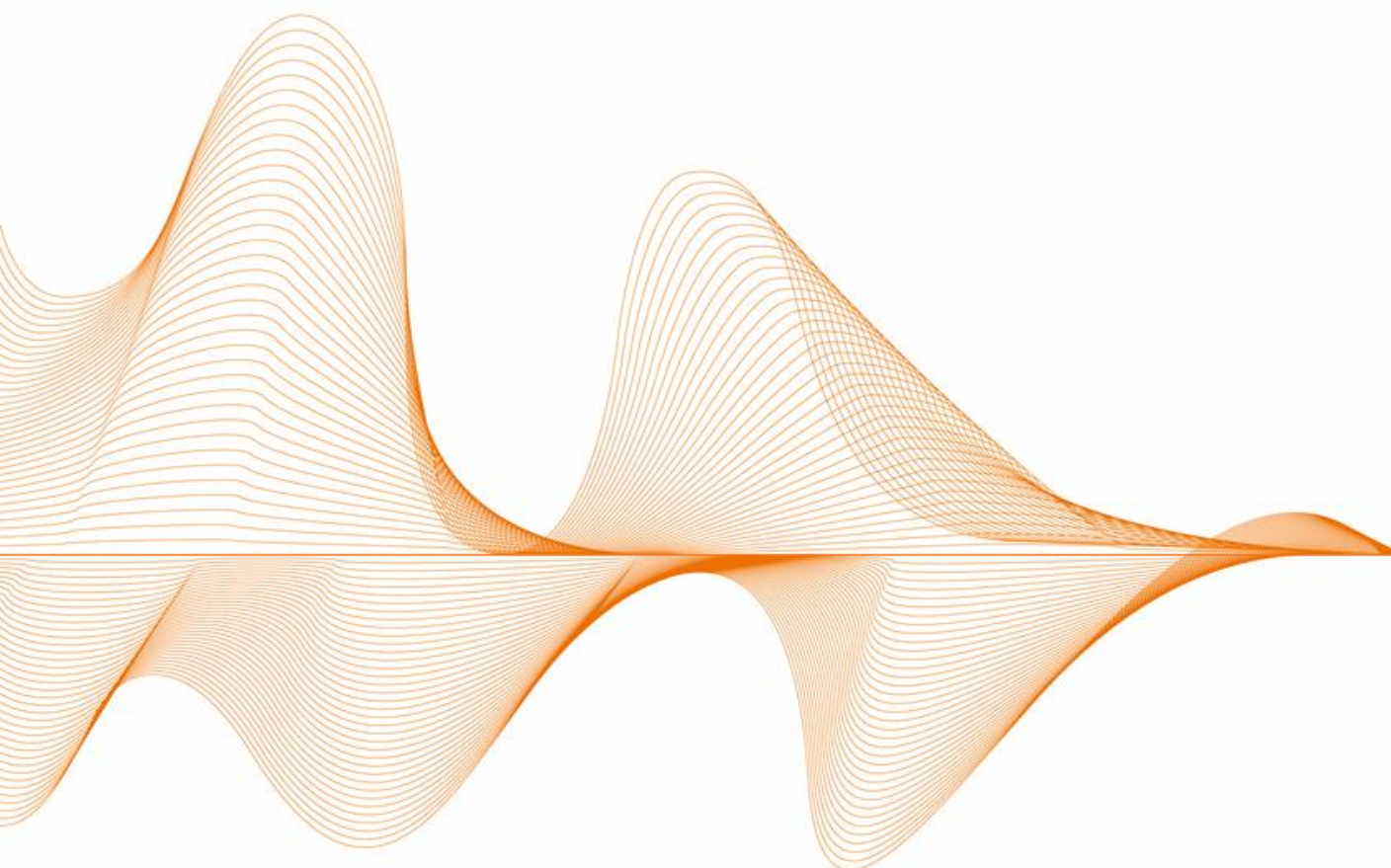


An abstract graphic on the left side of the slide, consisting of multiple thin, concentric, wavy lines in a light orange color. These lines form a series of peaks and valleys, creating a sense of movement and depth. The graphic is set against a solid orange background.

**SUSTAINABLE SOLUTIONS FOR ALL,
FROM ENERGY TO MATERIALS**



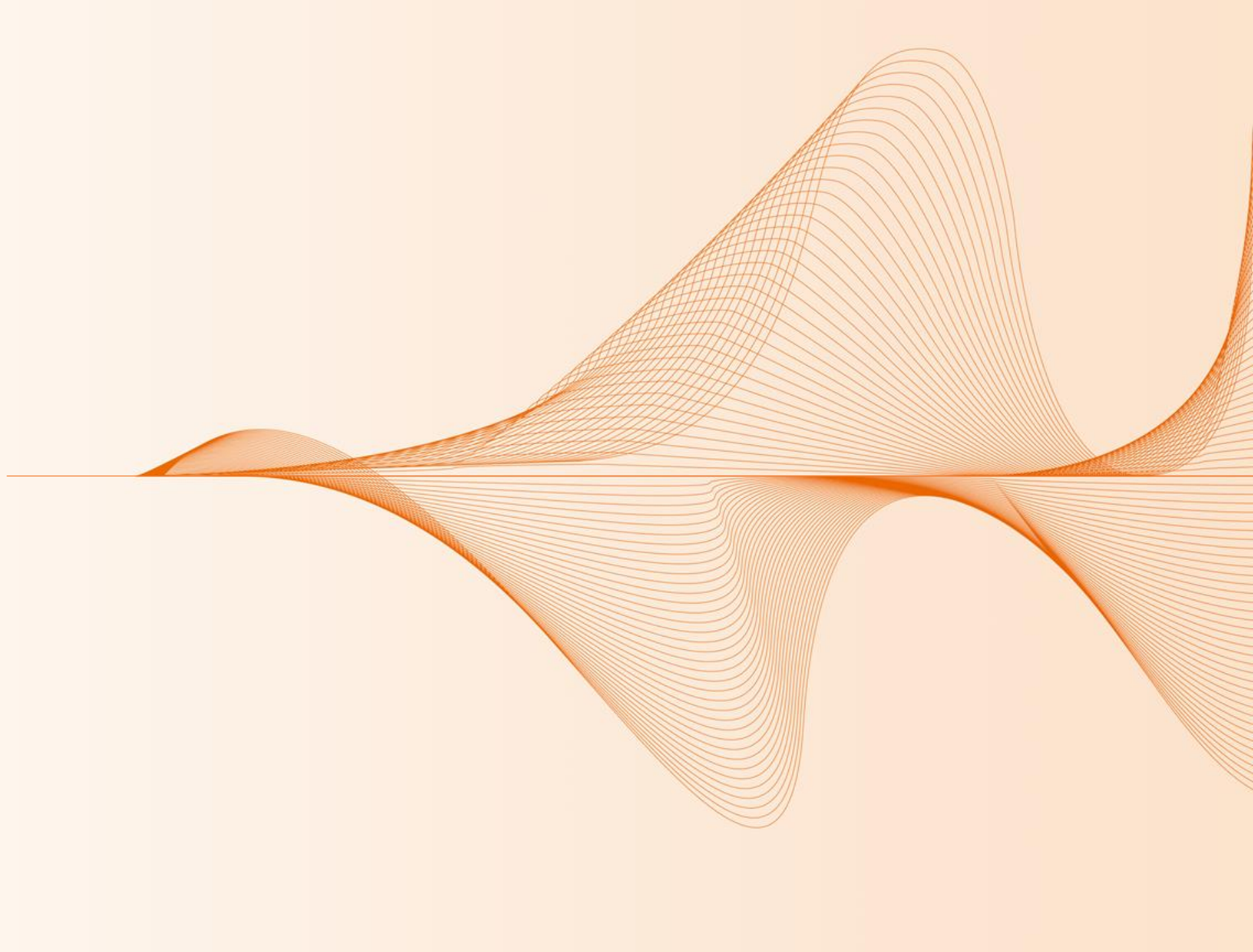
2023 Company Overview



Contents

- About Hanwha Group
- About Hanwha Solutions
- Chemical Division
- Qcells Division
- Insight Division
- Q ENERGY Division
- Green Hydrogen Business
- Social Contribution

About Hanwha Group

An abstract graphic composed of numerous thin, orange lines that flow and curve across the right side of the page. The lines create a sense of movement and depth, resembling a stylized wave or a series of overlapping, flowing shapes. The overall effect is a modern and dynamic background element.

Hanwha Overview

Hanwha continues to grow by quickly anticipating and responding to rapidly changing business environments with a balanced business portfolio that includes aerospace, energy & materials, finance and retail & services. As of 2022, we are the seventh largest business enterprise in South Korea and a Fortune Global 500 company. Our affiliates are becoming global leaders in their arenas by strengthening core competitiveness and securing future growth engines based on sound financial structures.

Total Sales

As of 2022

65.3B USD

Business Enterprise in South Korea

Total asset basis, as of end of 2022

Top 7

Years of History

Founded in 1952

71

Domestic Affiliates

As of end of 2022

91

Global Networks

As of end of 2022

710

Ranking on Fortune Global 500 in 2022

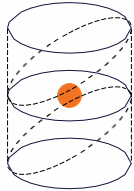
306

Hanwha Brand Vision

Brand Purpose

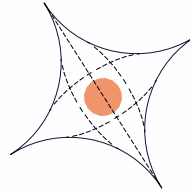
A relentless commitment to sustainability drives our bold innovation, allowing us to create transformative solutions for individuals, society, and the planet.

Brand Values



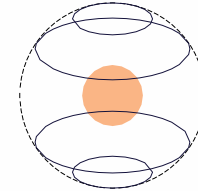
Sustainable and Inclusive Growth

We strive for social, economic, and environmental prosperity for all.



Technology and Solution-driven Innovation

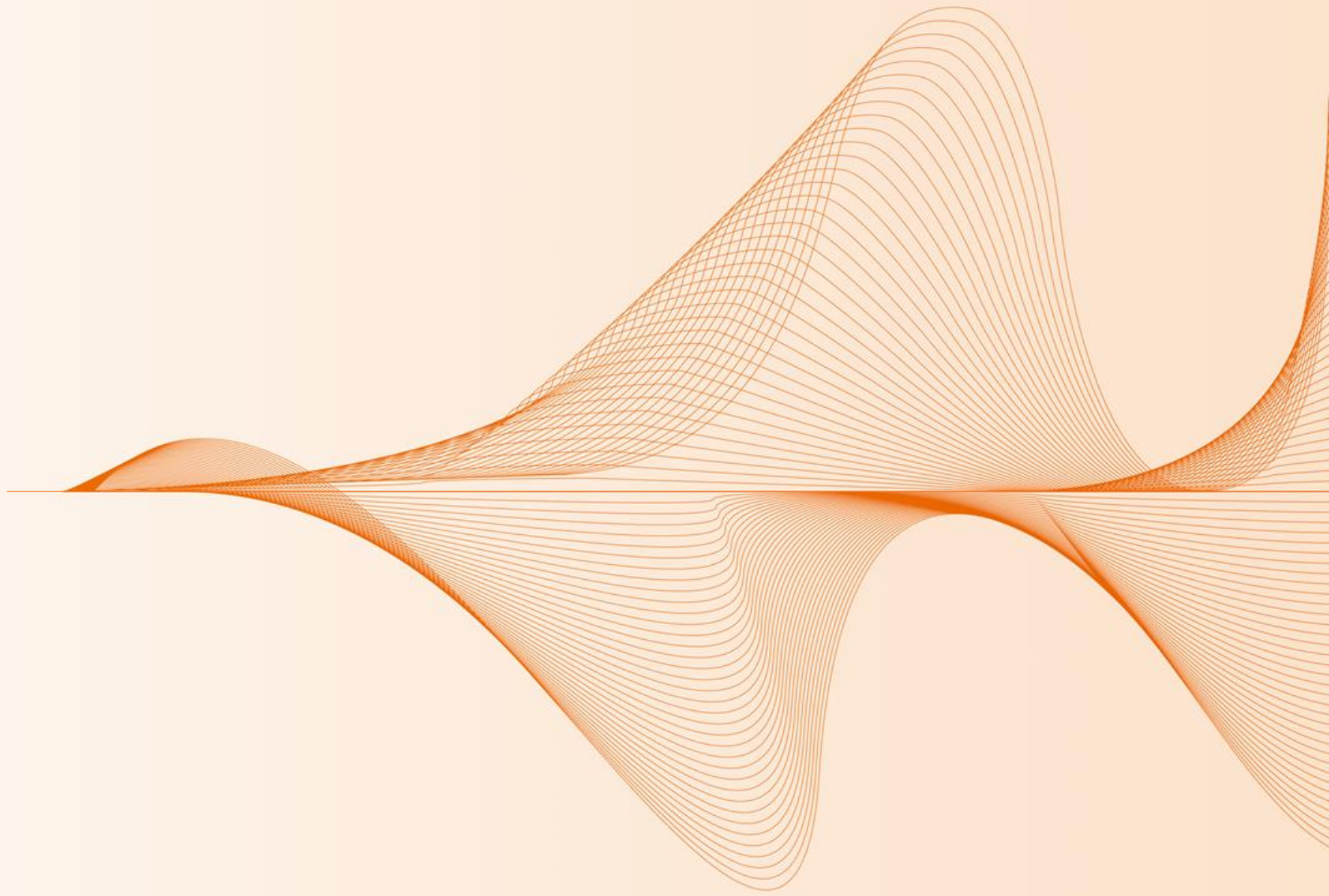
Through technological innovation, we provide solutions from people to planet.



Enhancing Lives

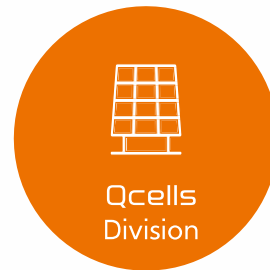
We lay foundation for a fulfilling life through our technologies, products, and services.

About Hanwha Solutions



Hanwha Solutions Overview

Hanwha Solutions provides a range of solutions in various fields with differentiated technology and innovation. We are growing as a global leader in responding to climate change with smart eco-friendly energy solutions and customer-focused materials. We are committed to enriching the future with sustainable solutions for all.



Company Name	Hanwha Solutions Corporation
Year Founded	1965
CEOs	Lee Koo Yung, Nam Yi Hyeon, Kim Dong Kwan (As of end of March 2023)
Head Office	Hanwha Building, 86 Cheonggyecheon-ro, Jung-gu, Seoul, South Korea

Major Business	Chemical Division South Korea's first PVC producer, who provides petrochemical-based products such as PO, TDI and CA and also develops eco-friendly/recycled materials
	Qcells Division A provider of total energy solutions, from solar modules and systems to renewable energy plant development/construction and energy retail
	Insight Division A leading developer of renewable energy plants, cities and smart multifunctional industrial complexes (building in compliance with RE100 as well as for logistics/data center, etc.), and premium lifestyle facilities
	Q ENERGY Division European green energy player active in development, construction and operation of green power plants: solar, onshore wind, offshore wind, energy storage and green hydrogen.

Hanwha Solutions Vision & Mission

Hanwha Solutions is quickly being recognized as a global leader in energy and material technology-based solutions driven by the new vision of “Sustainable solutions for all, from energy to materials.”

Vision

Sustainable solutions for all, from energy to materials

Mission

We aim to deliver sustainable solutions for the planet through smart energy solutions and customer-focused materials.

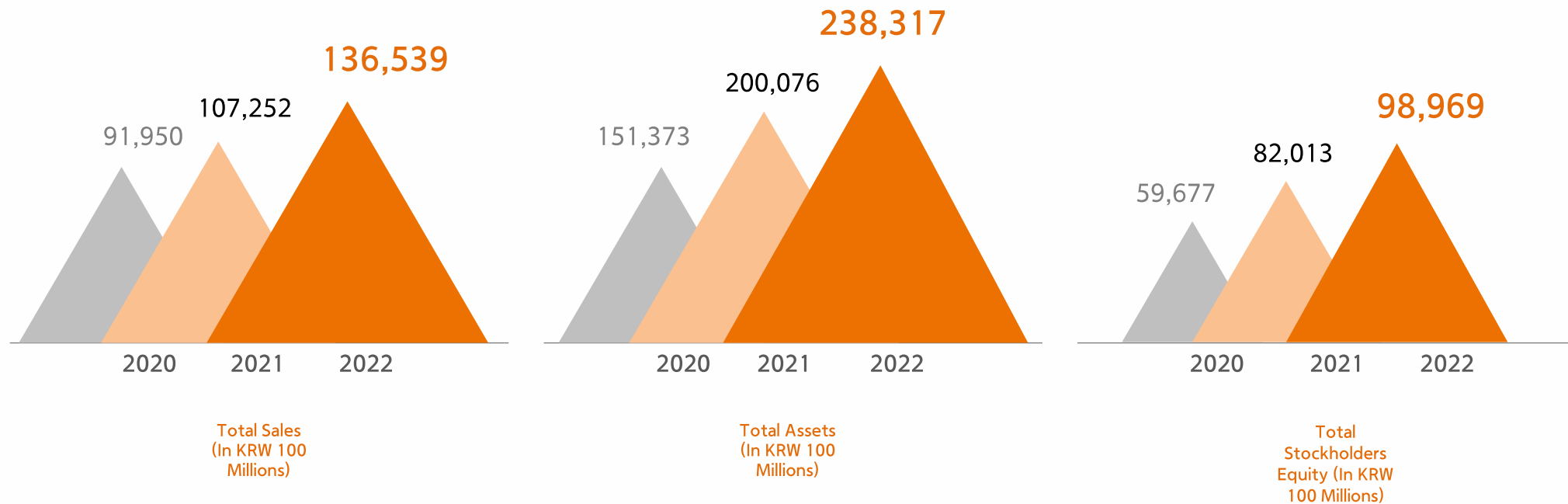
Business Statement

Chemical (Chemical Division)	Solar Energy (Qcells Division)	Real Estate Development (Insight Division)	Green Energy (Q ENERGY Division)
We are a green energy company that constantly challenges itself and drives innovation to lead the way towards a sustainable future with our cutting-edge technology.	We aim to create a more sustainable future by providing clean energy solutions.	We are a total solutions platform that creates future value by converging finance with development projects in green energy, smart multifunctional industrial complexes, and premium lifestyle facilities.	Empower a sustainable world with green energy.

Hanwha Solutions Financial Highlights

Despite drastic changes across markets and industries, Hanwha Solutions continues to grow in a consistent and stable manner through efficient business restructuring and business portfolio diversification.

(On a consolidated basis)



Hanwha Solutions Global Network (Chemical Division)

Chemical Division is responding to the rapidly changing global business environment with 8 global networks in Asia and the Middle East, with its headquarters in Seoul.

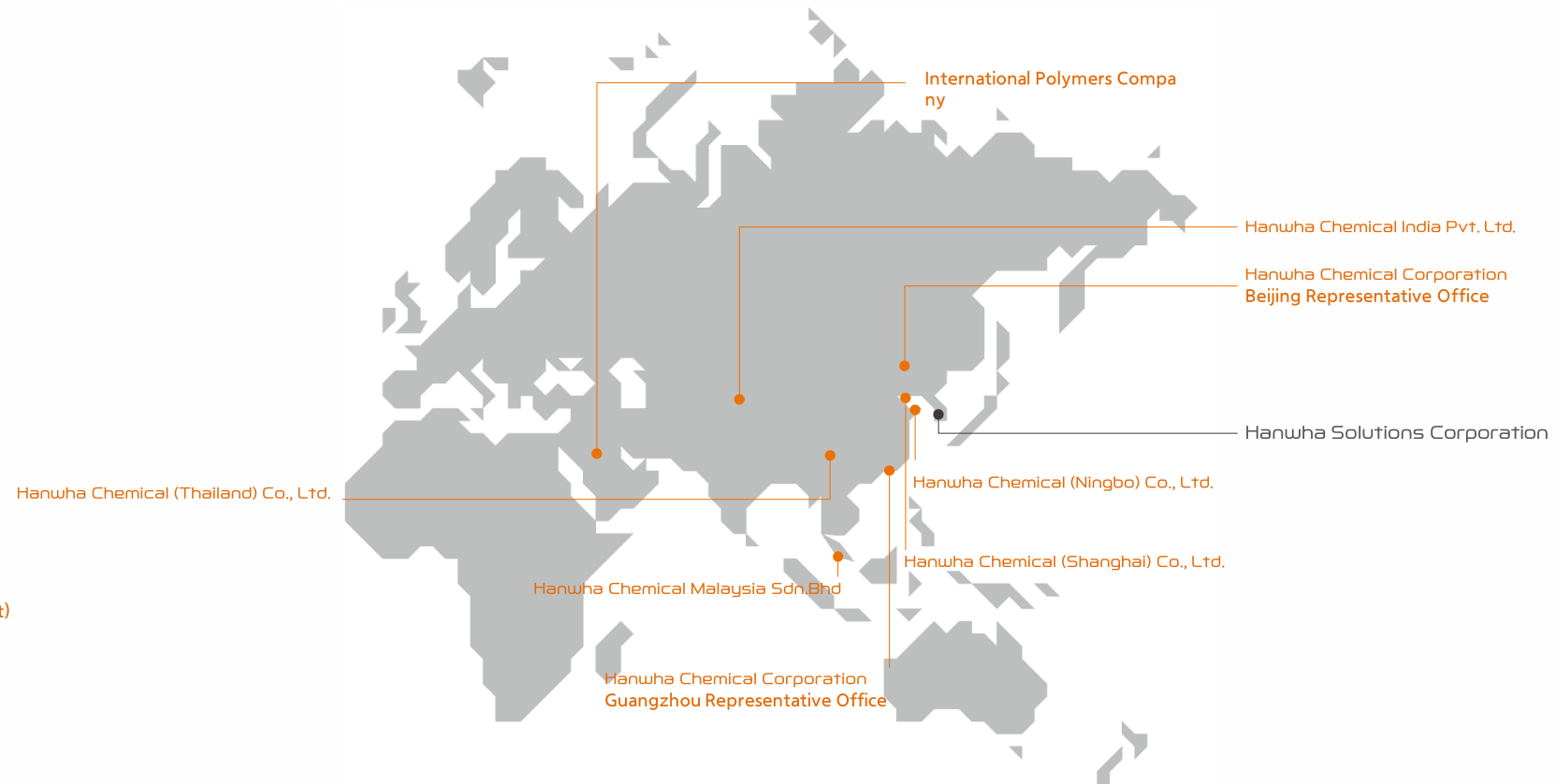
11

Domestic Network

- Seoul Headquarters
- Daeduck R&D Center
- Yeosu Plant
- TDI Plant
- Ulsan Plant 1
- Ulsan Plant 2
- Ulsan Plant 3
- Daegu Branch
- Busan Branch
- Gwangju Branch

8

Overseas Network (Asia and the Middle East)



Hanwha Solutions Global Network (Qcells Division)

Qcells Division works closely with global R&D and manufacturing sites to maintain the highest level of quality across manufacturing, sales and support.

2

Headquarters

- Seoul (Global Executive HQ)
- Thalheim Germany (Technology & Innovation HQ)

4

R&D Network

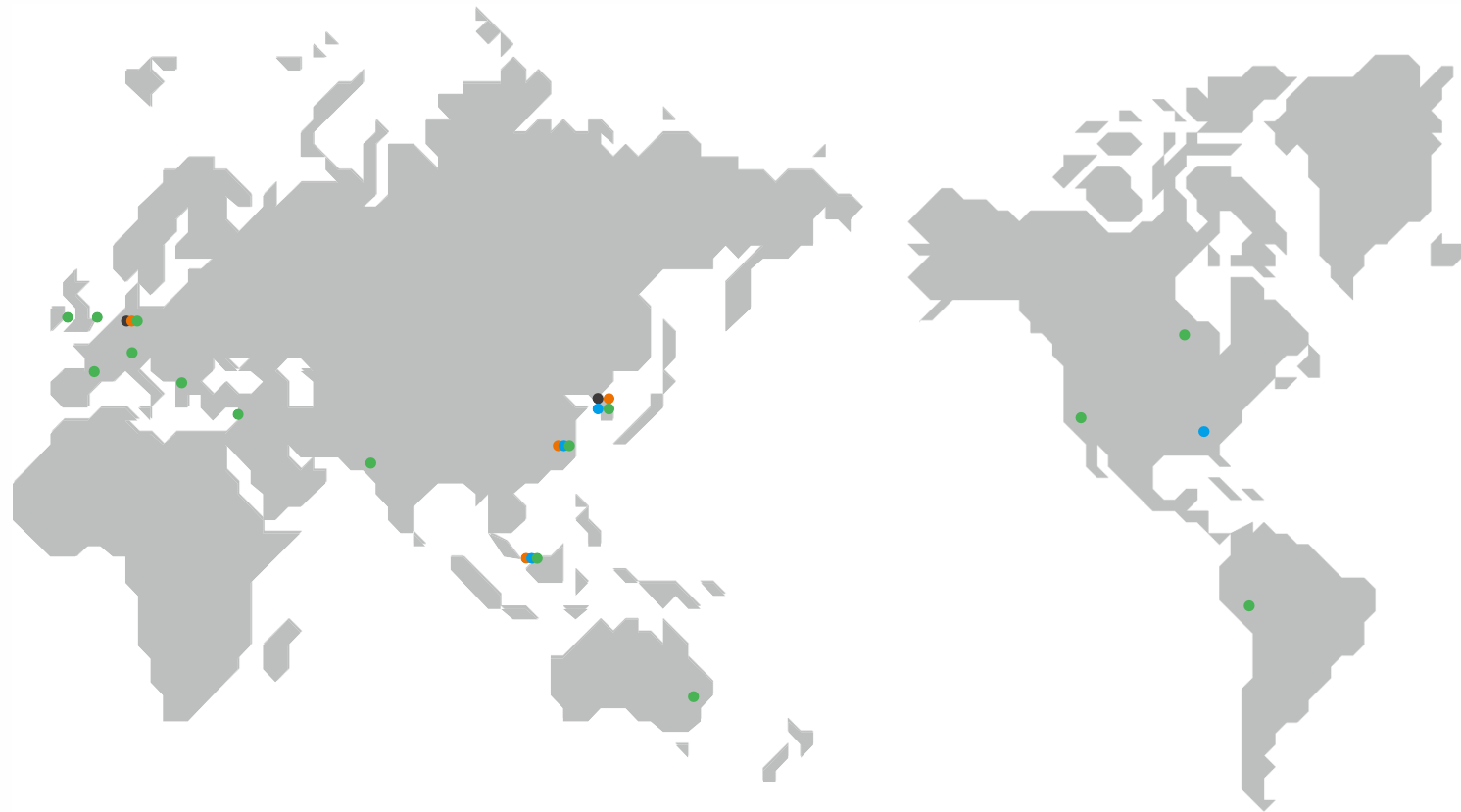
- Germany
- South Korea
- Malaysia
- China

4

Manufacturing Sites

60+

Sales Network (Worldwide)



Hanwha Solutions Global Network (Insight Division)

Our Insight Division has five global networks in Asia and South America. We are pioneers in the global market and leverage our global leading experience and expertise on daily basis.

10

Domestic Network

Renewable Energy

- Taeon Anmyeon Clean Energy
- Goheung Floating Solar Power Plant
- Daeho Floating Solar Power Plant

Premium Lifestyle

- Chuncheon Jade Palace

City Development

- 2nd Yongin Techno Valley
- Anseong Techno Valley
- Seoochang Techno Valley
- H-Techno Valley
- Ulsan Multifunctional Complex
- Anseong Logistics Center

5

Overseas Network

- USA – Seven Stones Winery
- Chile– 1st and 2nd Namdong Solar Power Plant
- Japan – Niseko A, Niseko B



Hanwha Solutions Global Network (Q ENERGY Division)

Q ENERGY Division is a provider of holistic solutions around green energy power plants in Europe – and actively develops a significant scale of projects in Spain, France, Portugal, Germany, the Netherlands, Italy and the UK.

1

Headquarters
Berlin, Germany

Offices

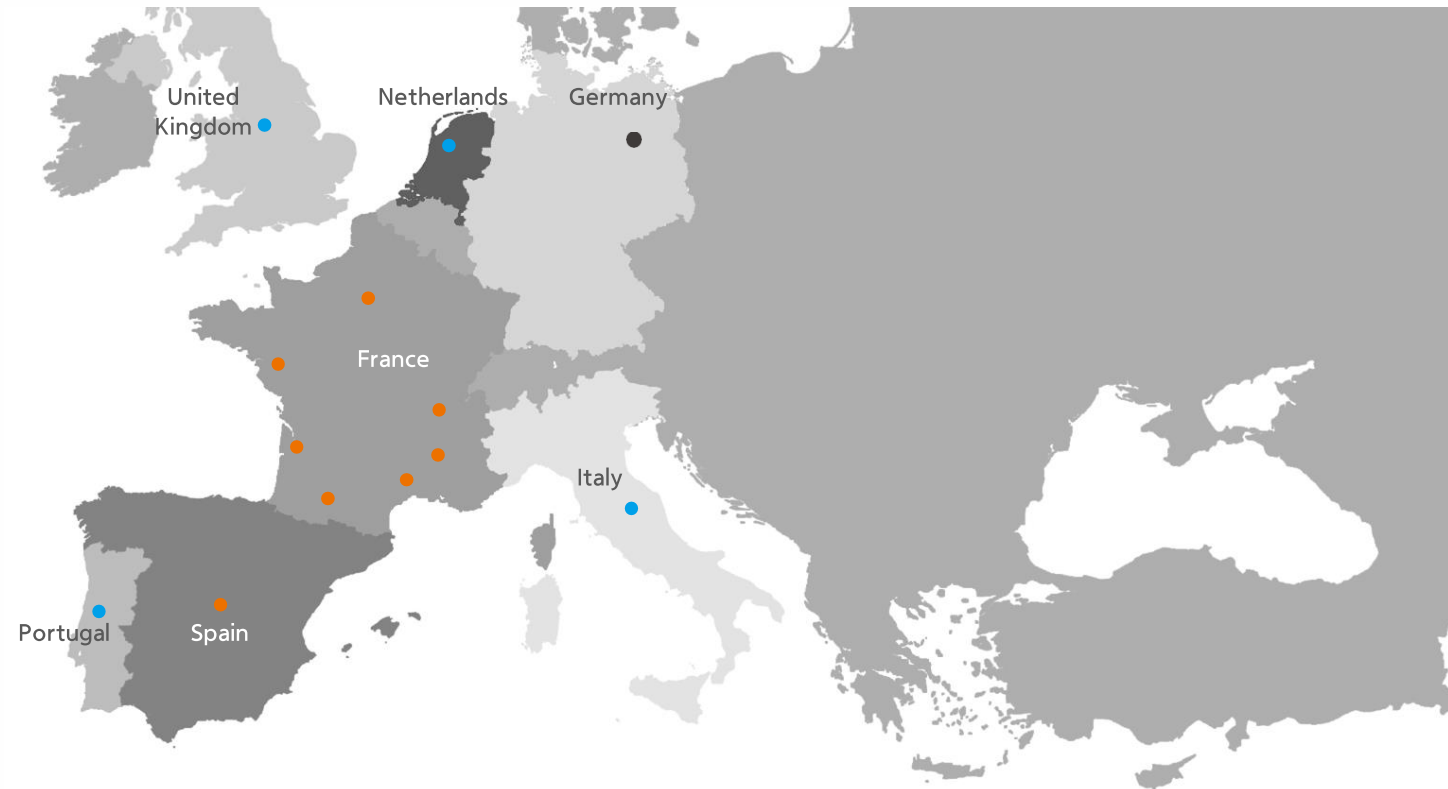
- Madrid, Spain
- Avignon, France
- Paris, France
- Lyon, France
- Bordeaux, France
- Nantes, France
- Toulouse, France
- Montpellier, France

8

4

Sales Representations

- Portugal
- Italy
- Netherlands
- United Kingdom



Hanwha Solutions History

- 2023 • Spun off Galleria Division
- 2022 • Split off Advanced Materials Division
- Insight Division, acquired the Jade Palace Golf Club in Chuncheon, Hanwha Resort Jirisan and Niseko from Hanwha Hotels & Resorts and Seven Stones Winery
- Insight Division, secured contracts for Tae'an Anmyeon Clean Energy (307MW) and Daeho Floating Solar Power Plant (98MW)
- Insight Division, established Anseong Techno Logistics and REC Data Center
- Launched Insight Division by renaming City Development Division (restructured Qcells GES and Galleria premium lifestyle business units)
- Green power plant business spun off from Qcells Division in Europe merged with RES France SAS to form Q ENERGY
- 2021 • City Development Division, established H-Techno Valley and Ulsan Multifunctional Complex
- Hanwha Solutions merged Hanwha Galleria and Hanwha City Development
- 2020 • Launched Hanwha Solutions through the merger of Hanwha Chemical and Hanwha Q CELLS & Advanced Materials



City Development Division, established Seoochang Techno Valley and 2nd Yongin Techno Valley

- 2019 • Qcells Division, succeeded in mass-producing 15GW of Q.ANTUM solar cells
- 2018 • City Development Division, established Anseong Techno Valley
- 2018 • Qcells Division, merged with Hanwha Advanced Materials to become Hanwha Q CELLS & Advanced Materials
- 2016 • Chemical Division, acquired Hanwha Fine Chemical
- 2015 • Chemical Division, merged with Hanwha SolarOne and Hanwha Q CELLS to form Hanwha Q CELLS
- Acquired Samsung Total Petrochemicals and Samsung General Chemical
- Qcells Division, acquired SolarOne
- City Development Division, established Gyeonggi Yongin Techno Valley
- Chemical Division, developed XLPE for High Voltage Direct Current (HVDC) Insulation
- 2013 • Chemical Division, established Hanwha Chemical Malaysia SDN. BHD.
- 2012 • Chemical Division, developed ECO-DEHCH, a premium eco-friendly plasticizer
- 2011 • Chemical Division, entered the polysilicon business



Hanwha Solutions History

- 2010 • Chemical Division, changed its corporate name to Hanwha Chemical Corporation, completed construction of Ningbo PVC Plant in China



Qcells Division, acquired Hanwha Solarfun to become Hanwha SolarOne

City Development Division, established Gyeonggi Hwaseong Bio Valley

- 2009 • City Development Division, established Gimhae Techno Valley



- 2008 • Chemical Division, developed DOTP plasticizer at the Daedeok R&D Center
- 2007 • City Development Division, established Seosan Techno Valley
- 2006 • City Development Division, established Asan Techno Valley
- 2004 • Chemical Division, opened its Beijing Office
- 2003 • Chemical Division, secured source technology for ultra-high-content EVA
- 2002 • Chemical Division, developed ASR at the Daedeok R&D Center

- 2001 • City Development Division, established Daedeok Techno Valley

- 1999 • Qcells Division, founded Q-Cells AG in Germany



- 1996 • Chemical Division, developed an in-house technology to produce high-content EVA for shoes
- 1995 • Chemical Division, developed LLDPE production technology for insulation
- 1994 • Chemical Division, changed its corporate name to Hanwha General Chemical
- 1991 • Chemical Division, developed South Korea's first XLPE for ultra-high voltage cable insulation
- 1985 • Chemical Division, completed EVA production line at its Ulsan Plant and developed XLPE for power cable insulation, both of which were the first of their kind in the nation
- 1980 • Chemical Division, completed construction of the Hanyang Chemical Yeosu Plant and Dow Chemical Korea Yeosu Plant
- 1979 • Chemical Division, established the Daedeok R&D Center of Hanyang Chemical
- 1965 • Chemical Division, established the Korea Hwasung Plant

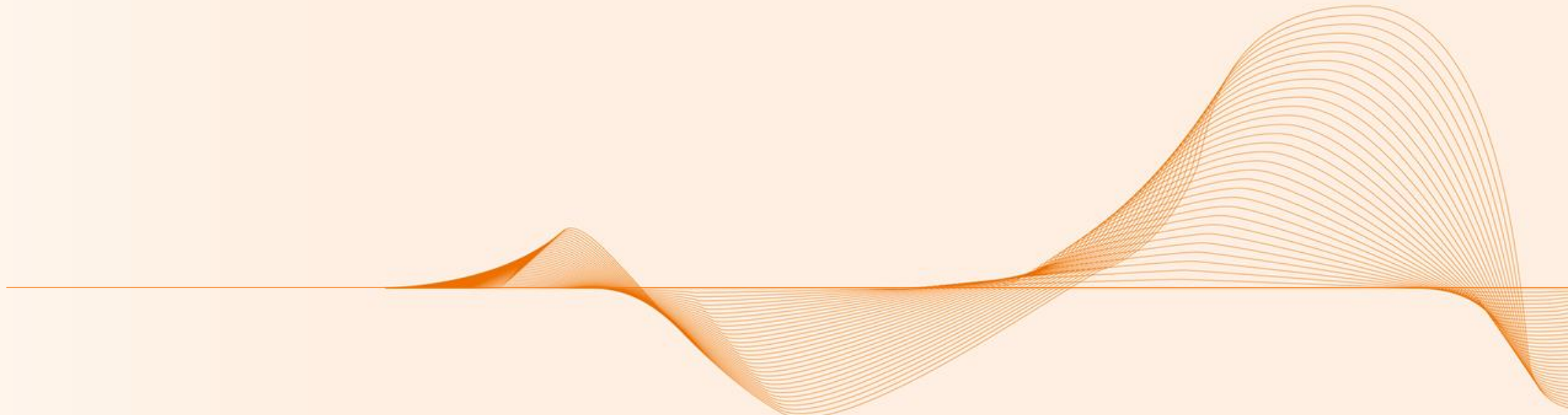


Hanwha Solutions Business Strategy

Hanwha Solutions leverages its business strategies to become a global energy and materials solution leader as we enhance the value of life and create a sustainable future.

	Chemical (Chemical Division)	Solar Energy (Qcells Division)	Real Estate Development (Insight Division)	Green Energy (Q ENERGY Division)
Strategy	• Strengthen existing business competencies – Advance product portfolio and improve cost competitiveness • Diversify technology-based businesses – Develop high-value-added resources, materials and healthcare products • Boost digital transformation – Continue to generate profit by transforming the ways of working from analog to digital	• Diversify business portfolio – Become an energy operator by internalizing software platform capabilities and providing financial solutions – Strengthen the development of photovoltaic (PV) and energy storage system (ESS) technologies for large-scale power generation, as well as expand its engineering, procurement, and construction (EPC) business	• Develop assets with high future value – Enhance asset value by developing data center and logistics center, which are essential facilities in the Fourth Industrial Revolution era • Expand renewable energy platforms – Create sustainable high-added-value by expanding its platform from PV EPC to investment, development, and operation • Bolster premium real estate and contents businesses – Expand luxury lifestyle platform business by developing premium residence, hotel, and lifestyle content	• Strengthen & expand development platform – Grow solar and wind pipeline – Expand regional coverage – Strengthen in-house development – Upgrade EPC capabilities • Diversify technology portfolio – Enter offshore wind business value chain – Expand ESS via hybridization – Develop early stage H2 business • Pursue Continuous company excellence – Corporate Identity (purpose and value creation program) – Digital integration & transformation – Cultural integration
Sustainability Insight	• Explore eco-friendly businesses – Develop green hydrogen business (water electrolysis tank, hydrogen tank) – FoodTech (cultured meat materials) • Build a circular economy system – Mechanical & Chemical Recycling – Bio-based Chemical & Polymer – Bio-degradable Polymer – CO₂ Utilization	• Lead the smart energy lifestyle market – Create an efficient energy lifestyle that enables solar energy-based power generation, storage and control using PV and ESS businesses – Contribute to the economic use of eco-friendly electricity for consumers through our energy retail business, targeting prosumers and self-consumption markets	• Develop smart and green industrial complex (RE100) – Pursue sustainable values and innovation of existing complexes by developing a smart green industrial complex complying with RE100 – Develop ecological green city by linking parks and green areas • Advance renewable energy – Provide RE100 and eco-friendly energy via diverse routes, such as third-party PPAs and direct PPAs	• Install a professional ESG Management system – Dedicated ESG team and organisation installed – Top ESG action areas defined – Coherent ESG management cycle defined • Action plan 2023 determined – Build QE ESG KPI system along EU standards – Expand risk and environmental management systems – Create draft QE ESG report for FY 23

Chemical

An abstract graphic consisting of a series of thin, parallel orange lines that form a wave-like pattern. The wave starts with a small peak, followed by a deep trough, and then a large, prominent peak before ending with a smaller trough. A solid orange horizontal line runs across the middle of the image, passing through the wave.

Chemical Division Overview

Established in 1965, Chemical Division is a producer of PVC (polyvinyl chloride), the first in South Korea. We also produce LDPE (low-density polyethylene), LLDPE (linear low-density polyethylene), CA (chlorine and caustic soda), and TDI. By producing basic chemical products necessary in everyday life, we are improving the quality of life around the world.

Business Area

We built a batch production system that ranges from PO, PVC, CA, and TDI. As South Korea's leading chemical company, we are transforming into a global eco-friendly company by expanding our portfolio of high-value-added products, enhancing cost competitiveness and developing eco-friendly products.



PO (Polyolefin)



PVC (Polyvinyl Chloride)



CA



TDI

Chemical Division Key Products

PO (Polyolefin)



Boasting outstanding physical properties and environmental stability, PO is a polymer used in a wide variety of applications from daily consumer goods to high-tech industrial materials. In 1972, we succeeded in producing LPDE for the first time in South Korea, and are now producing wire and cable compounds, adhesives for hygiene products, and hydrogenated hydrocarbon resins.

Products

LDPE, LLDPE, EVA, HDPE, wire and cable compounds, hydrogenated hydrocarbon resins.

PVC (Poly Vinyl Chloride)



PVC is a general-purpose plastic widely used for applications such as synthetic leather, packaging, flooring, toys, and textiles. In 1966, we became the first company in South Korea to produce PVC. Since then, we also developed ECO-DEHCH, a premium eco-friendly plasticizer, which was the first of its kind in South Korea.

Products

PVC (Straight/paste/CPVC), Eco-DEHCH (Eco-friendly plasticizer), plasticizer/OA/PA/MA

CA (Chlor-Alkali)



Chlor-alkali, also known as CA, is an inorganic chemical product represented by chlorine and caustic soda. It is used in various fields such as inorganic chemical products, paper, textiles, metals, electricity and electronics. We are striving to secure global competitiveness while maintaining our No. 1 market share in CA domestically.

Products

Caustic soda, chlorine, EDC, VCM, ECH, sodium hypochlorite

TDI (Toluene Diisocyanate)



TDI is commonly used across a wide array of industries and in everyday life, such as polyurethane foam and paint adhesives. We are enhancing our global competency within the polyurethane industry through the localization of high-purity XDI, a specialty chemical material for optical lenses, for the second time in the world.

Products

TDIs, TDI derivatives, TM, TDAs, XDI

Chemical Division R&D

For over 30 years since its inception, Chemical Division's Daeduck R&D Center has been committed to developing forward-looking technologies as we pursue a better tomorrow.

R&D Mission



Securing future growth engines

To capitalize on our corporate strategy, we employ a research approach that focuses on source technology, new product development, and eco-friendly technology. This will enable us to commercialize our next-generation growth engines.



Strengthening business competencies

We concentrate on upgrading existing processes, improving quality, and innovating cost reduction. Our aim is to maintain top competitiveness for our current businesses while expanding high-value-added specialty products.



Creating a pool of experts

To encourage top experts to pursue cutting-edge research, we provide a research environment that allows them to freely express their creativity while supporting various development systems.



Building a global R&D network

To establish ourselves as a leader in the global market, we make every effort to secure original technologies and global core technologies by promoting close collaborations with promising overseas companies and world-class research institutes..

Major Research Area



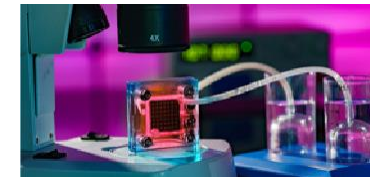
PO/PVC polymerization technology and product development



Eco-friendly plasticizers



Polymerization/chemical catalysts



High-value-added isocyanate



Functional polymers



Chemical processes



Water electrolysis



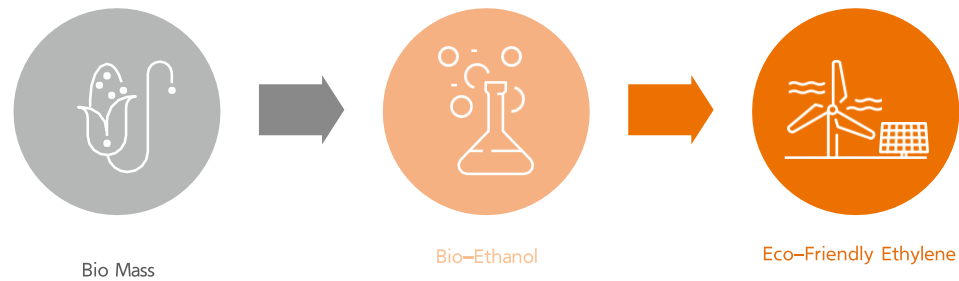
Eco-friendly materials/processes

Chemical Division Green/Circular Economy Model

Green Materials/Renewable Energy•Clean Hydrogen

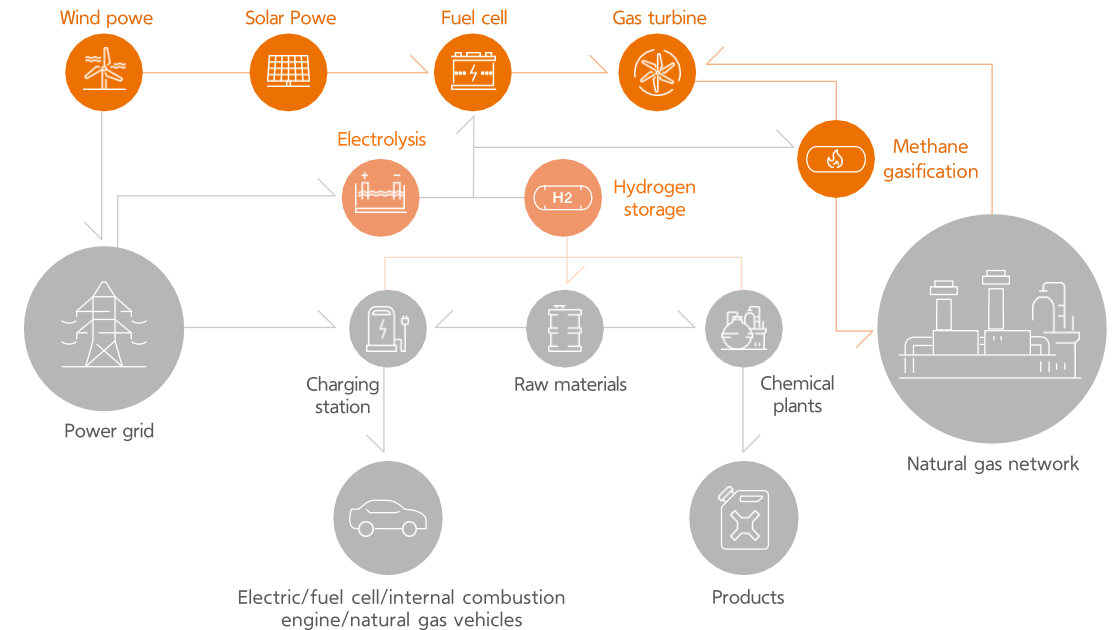
Sustainable ETE (Ethanol to Ethylene)

- Biomass crops such as corn and sugarcane absorb a substantial amount of CO₂ during photosynthesis and can be processed into bio-based ethanol.
- This ethanol can be further converted into eco-friendly ethylene—a key raw material for making petrochemical products—using ETE technology.



A virtuous cycle of hydrogen achieved through renewable energy-based water electrolysis

- Our goal is to broaden our business models by leveraging clean hydrogen generated via water electrolysis powered by renewable energy sources such as solar and wind power.
- We are focused on creating next-generation water electrolysis tanks that facilitate low-cost production of clean hydrogen.



Chemical Division Green/Circular Economy Model

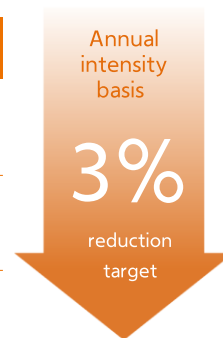
Process Optimization and Energy Efficiency

Optimizing processes is a means of reducing CO₂ emissions and promoting environmentally-friendly activities. This can be achieved by enhancing the utilization of waste heat and co-generated steam from processes, as well as by increasing the adoption of energy-efficient equipment.

Hanwha Solutions' Environmental Performance and Goals

KPI	Unit	Goals in 2021	Performance in 2021	Goals in 2022
Greenhouse gas (GHG) emission intensity	tCO ₂ -eq (In one hundred million KRW)	38.7	34.1	33.1
Air pollutant (NO _x , SO _x and dust) emission intensity	kg (In one hundred million KRW)	3.27	2.70	2.62
Water consumption intensity	ton (In one hundred million KRW)	245.5	245.1	237.8
Waste disposal intensity		0.6	0.53	0.51

(Source: 2022 Hanwha Solutions Sustainability Report)



Carbon Cycle

Securing carbon capture and utilization technologies

CCU (Carbon Capture & Utilization) technology enables us to capture CO₂ emissions generated during manufacturing and convert them into valuable carbon resources, which can be recycled into eco-friendly raw materials. Additionally, we can produce clean hydrogen through electrolysis and incorporate it into the recycled materials.



We are exploring the potential for introducing and developing eco-friendly syngas production technology, known as Dry Reforming of Methane, which uses CO₂ as the primary raw material.

Chemical Division Green/Circular Economy Model

Eco-friendly Products/Technology

Eco-friendly Processing Technology

We are developing eco-friendly processing technology that reduces the reliance on harmful chemicals in our manufacturing process. To achieve this, we are adopting physical foaming technology instead of CBA (Chemical Blowing Agents) for foaming EVA. Additionally, we are utilizing supercritical solutions to decrosslink EVA foam, thereby improving its recyclability.



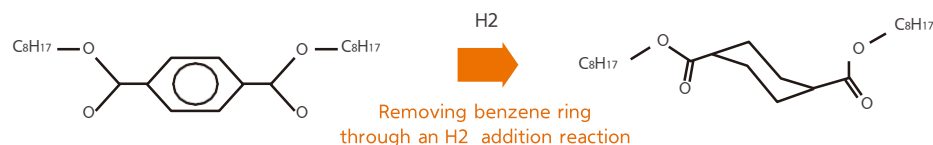
Low VOC foam



Decrosslinking

Eco-friendly Plasticizer DEHCH

We have successfully developed and launched DEHCH, an eco-friendly plasticizer that replaces phthalate-based plasticizers known for their reproductive toxicity issues. Additionally, we are planning to introduce Bio-Blend DEHCH, which is a blend of DEHCH and soybean oil/palm oil.

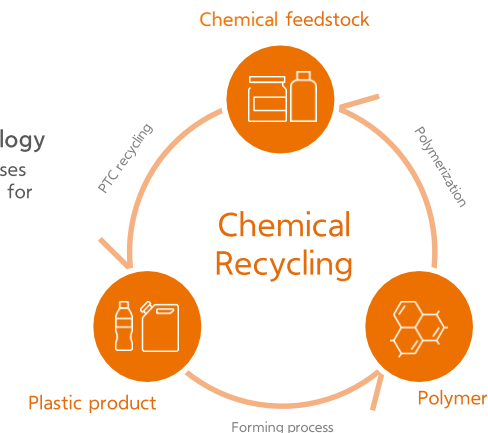


Our commitment towards a sustainable future drives us to expand our range of eco-friendly products. To achieve this goal, we are also exploring the development of biodegradable plastics and single-material packaging (BOPE, Bi-axially Oriented Polyethylene), which will improve recyclability and reduce waste.

Chemical Recycling

Plastic recycling using PTC (Plastic to Chemical) technology

We developed a technology for carbon resource circulation that uses pyrolysis oil from waste plastics to generate raw materials suitable for producing different types of petrochemical products.

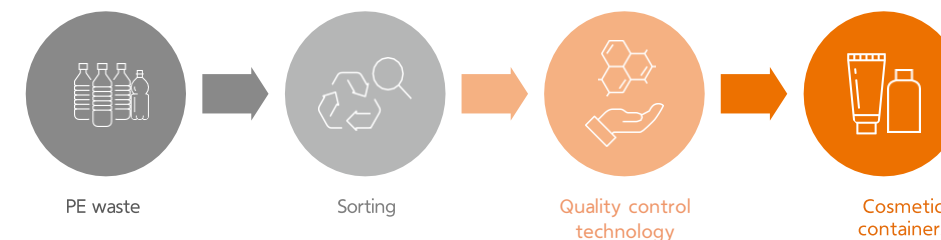


Physical Recycling

Eco-friendly/recycled materials development

Our initiative focuses on collaborating with leading consumer goods producers to create eco-friendly materials from recycled plastics, with the goal of reducing waste and promoting sustainability.

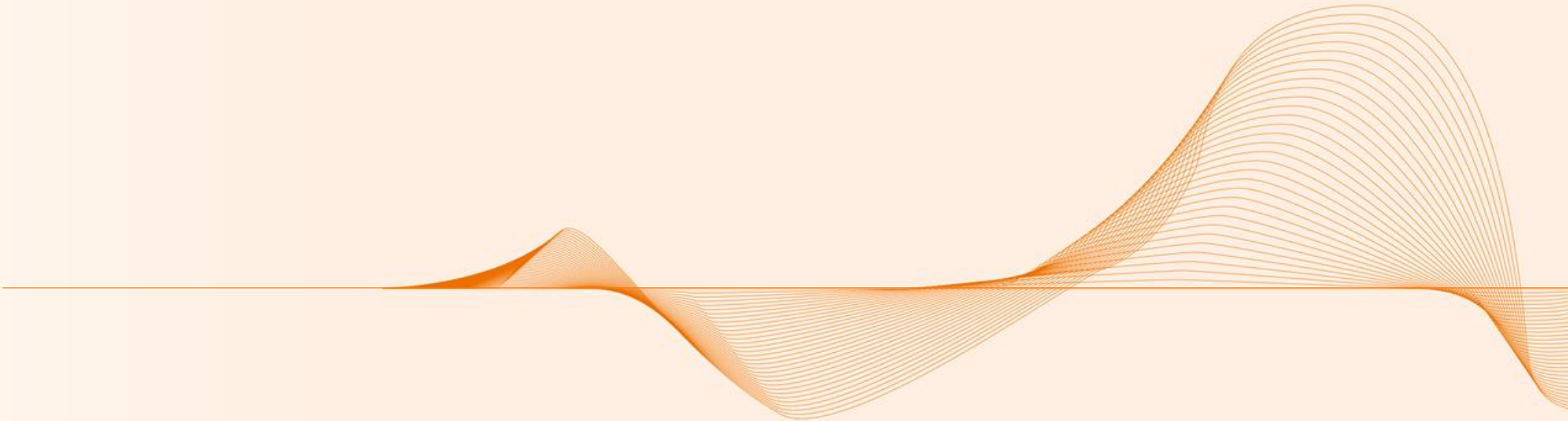
Business agreement for commercializing eco-friendly cosmetic packaging materials (Kolmar Korea/Yonwoo)



R&D of eco-friendly materials made from recycled marine waste (Hanwha Compound)

Hanwha Compound, a subsidiary of Hanwha Solutions, provides eco-friendly smartphone materials made from discarded fishing nets.

Qcells



Qcells Division Overview

Qcells Division is a global provider of total energy solutions. Building on our flagship business of solar cells/modules, we are expanding our business horizon to include energy storage and management systems, distributed power solutions, and green energy solutions. Under the mission of “We aim for a greener tomorrow with complete clean energy solutions,” we are becoming a powerhouse in key global markets by capitalizing our technology, quality, and product competitiveness.

Business Area

We offer “Completely Clean Energy” solutions, from solar cells/modules and systems, distributed power solutions to, renewable energy plants, and more .



Solar Cells/Modules



Energy Solutions Systems



Green Energy Solutions



Distributed Power Solutions

Qcells Division Key Products

Solar Cells/Modules



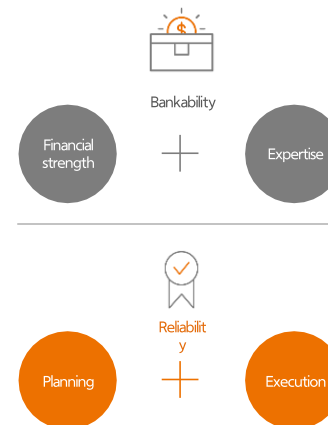
Our world-renowned solar modules, produced by our proprietary Q.ANTUM cell technology, are high-quality photovoltaic products that have enabled us to achieve No. 1 market share in key major markets due to their high efficiency, performance, and quality.

Energy Solutions System



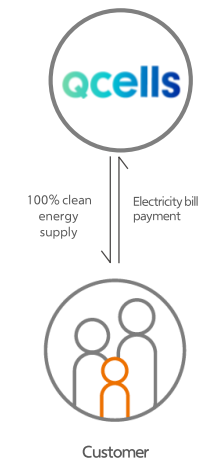
Our Q.HOME CORE is an ideal integrated energy solution that combines solar inverters, energy storage systems, and energy monitoring services to ensure efficient eco-friendly energy consumption, while reducing electricity costs for residential consumers.

Green Energy Solutions



Renewable energy plants are a reliable energy source and competitive economic investment that leverage our EPC solutions with financial stability, expertise, and product excellence.

Distributed Power Solutions



Our Qcells Division pursues a variety of power supply services to fulfill country-specific needs. By leveraging GELI, our US-based leading energy storage solutions and software provider, we will expand our energy retail business based on distributed power solutions that connect small-scale power generation, such as solar and wind power.

Qcells Division R&D

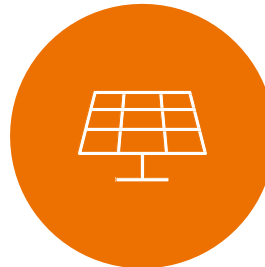
Our Qcells Division employs a unique combination of R&D, pilot productions, and testing to develop and apply innovative manufacturing methods for the creation of high-tech products. We are setting new technology standards in the industry.

R&D Center



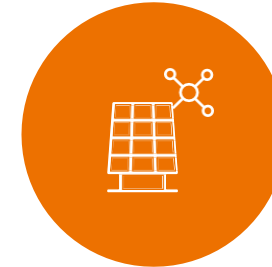
Germany, South Korea,
Malaysia, China

Technology Innovation



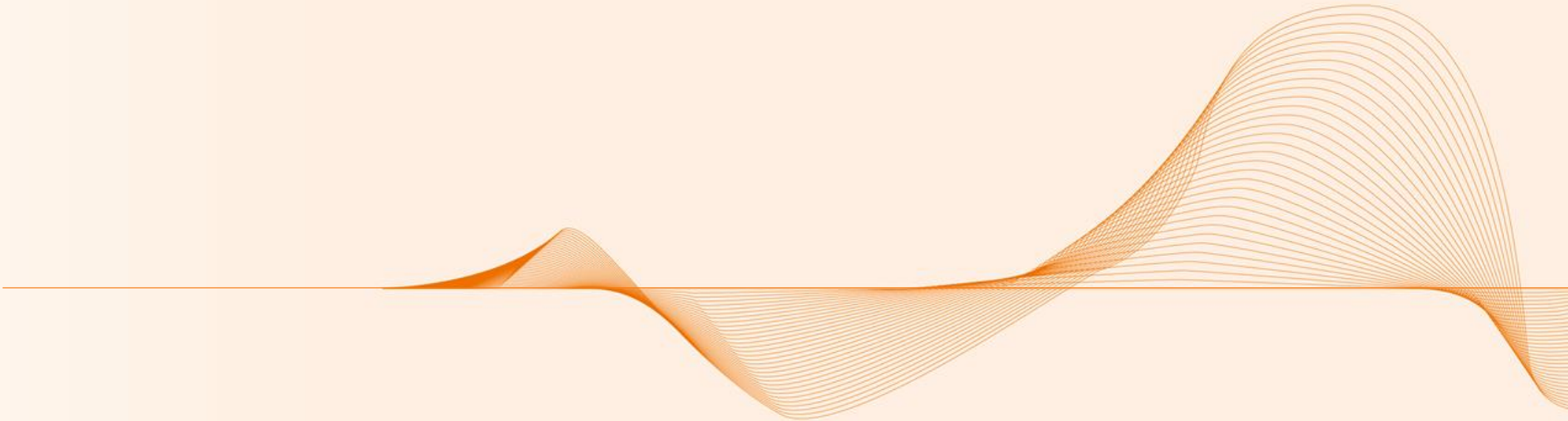
Q.ANTUM technology,
Q.ANTUM DUO technology,
Q.ANTUM DUO Z technology,
Q.ANTUM NEO technology

Building a Solar Integrated Production Complex in the US



Expanded our module capacity to 8.4 GW in Georgia
Built a new plant capable of producing 3.3 GW per
year of ingots, wafers, cells, and modules
Completed the first integrated value chain in the US

Insight



Insight Division Overview

Our Insight Division is opening new opportunities while creating future value for the development industry.

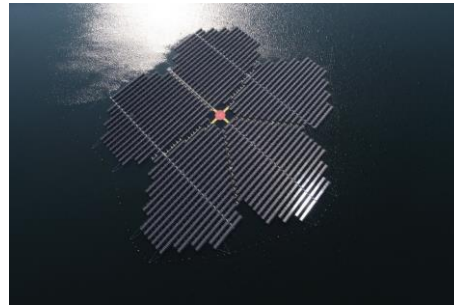
Business Area

By building a sound business portfolio of development projects—such as large-scale industrial complexes, renewable energy, and premium real estate—we are laying the foundation for sustainable growth through operation management and financing.



City Development

- New town and housing development
- Smart and green industrial complex (RE100) development



Energy Solutions

- Renewable energy development
- Renewable energy EPC and O&M



Premium Lifestyle

- Real estate development and operation
- Lifestyle contents development
- Complex development consulting



Business Strategy

- Eco-friendly data center and smart logistics center development
- Fundraising for co-investing in renewable and industrial infrastructure

Insight Division City Development Cases



Daedeok Techno Valley

- Location: Yuseong-gu, Daejeon
- Project period: 2001~2009
- No. of tenant companies: 600+
- Development area: 4,270,056m²



Seosan Techno Valley

- Location: Seongyeon-myeon, Seosan-si
- Project period: 2007~2016
- No. of tenant companies: 60+
- Development area: 1,985,848m²



Gyeonggi Hwaseong Bio Valley

- Location: Mado-myeon, Hwaseong-si
- Project period: 2010~2017
- No. of tenant companies: 180+
- Development area: 1,739,821m²



Asan Techno Valley

- Location: Dunpo-myeon, Asan-si
- Project period: 2004~2013
- No. of tenant companies: 110+
- Development area: 2,983,902m²



Gimhae Techno Valley

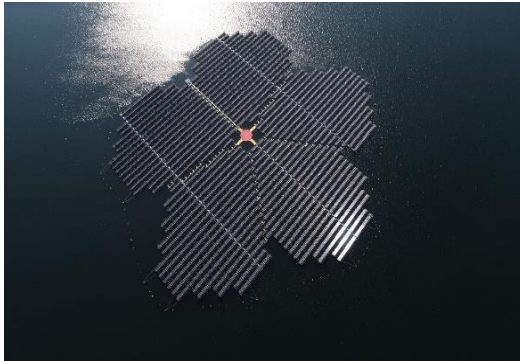
- Location: Jinrye-myeon, Gimhae-si
- Project period: 2011~2017
- No. of tenant companies: 210+
- Development area: 1,644,111m²



Yongin Techno Valley

- Location: Cheoin-gu, Yongin-si
- Project period: 2014~2020
- No. of tenant companies: 120+
- Development area: 840,342m²

Insight Division Renewable Energy Cases



Hapcheon Floating Solar Power Plant

- Business category: EPC
- Location: Hapcheon-gun, Gyeongsangnam-do
- Construction period: 2020~2022
- Scale: 42MW



Goheung Floating Solar Power Plant

- Business category: EPC
- Location: Goheung, Jeollanam-do
- Construction period: 2021~2023
- Scale: 63MW



Cheongsong Floating Solar Power Plant

- Business category: EPC
- Location: Cheongsong-gun, Gyeongsangbuk-do
- Construction period: 2021
- Scale: 4.4MW



Taeon Anmyeon Floating Solar Power Plant

- Business category: EPC
- Location: Anmyeon-do, Taeon, Chungcheongnam-do
- Construction period: 2022~2023
- Scale: 307MW

Insight Division Premium Lifestyle Cases



Jade Palace Golf Club

- Business category: Membership golf club
- Location: Seocheon-ri, Namsan-myeon, Chuncheon-si, Gangwon-do
- Course: West Course 3,490m / Par 36 / 9H, East Course 3,537m / Par 36 / 9H



Jade Garden

- Business category: Arboretum
- Location: Seocheon-ri, Namsan-myeon, Chuncheon-si, Gangwon-do
- Size: 163.528m²



Niseko Resort (Under development)

- Business category: Condominium for sale
- Location: Abuta County, Hokkaido, Japan
- No. of rooms: 113
- Estimated completion date: November 2023



Jade Villa (Under development)

- Business category: Villas for sales
- Location: Seocheon-ri, Namsan-myeon, Chuncheon-si, Gangwon-do
- No. of villas: 32
- Estimated completion date: The first half of 2025

Q ENERGY

An abstract graphic consisting of a series of thin, overlapping orange lines that form a wave-like pattern. The wave starts with a small peak, followed by a trough, then a larger peak, and ends with a small trough. A solid orange horizontal line extends from the text 'Q ENERGY' to the start of the wave pattern.

Q ENERGY Division Overview

Q ENERGY Division is Europe's green provider of renewable energy solutions for all future-ready and eco-conscious clients — a trustworthy partner for investors and project developers, cities and communities.

Business Area

Project development, construction and operation of green power plants:
solar, onshore & offshore wind, energy storage and green hydrogen



Solar Power



Onshore Wind



Offshore Wind



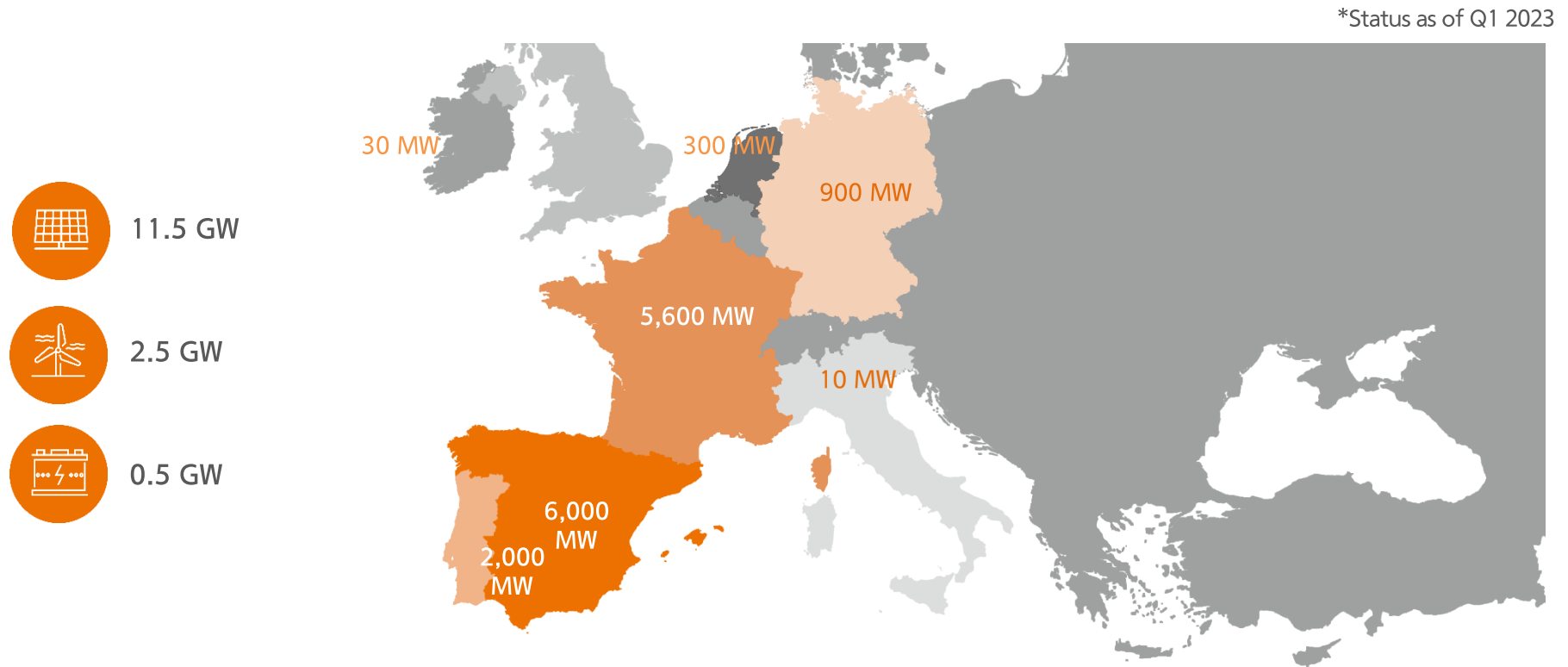
Energy Storage Solutions (ESS)



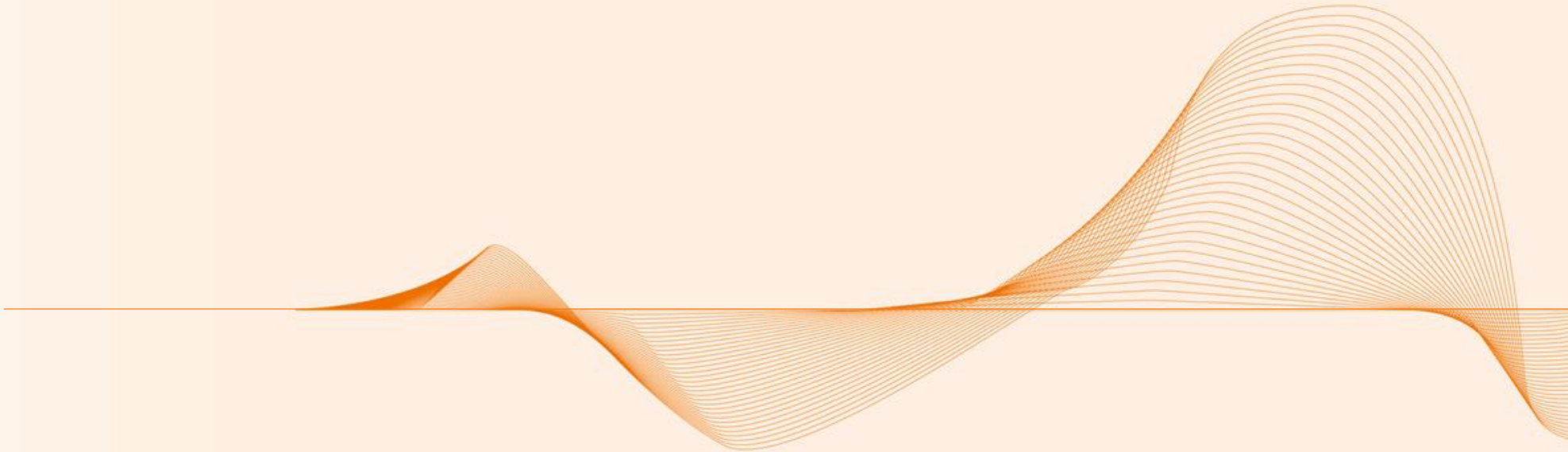
Green Hydrogen

Q ENERGY Division Pipeline

As of Q1 2023 Q ENERGY Division runs an active development pipeline of around 15 GW* across key European markets.

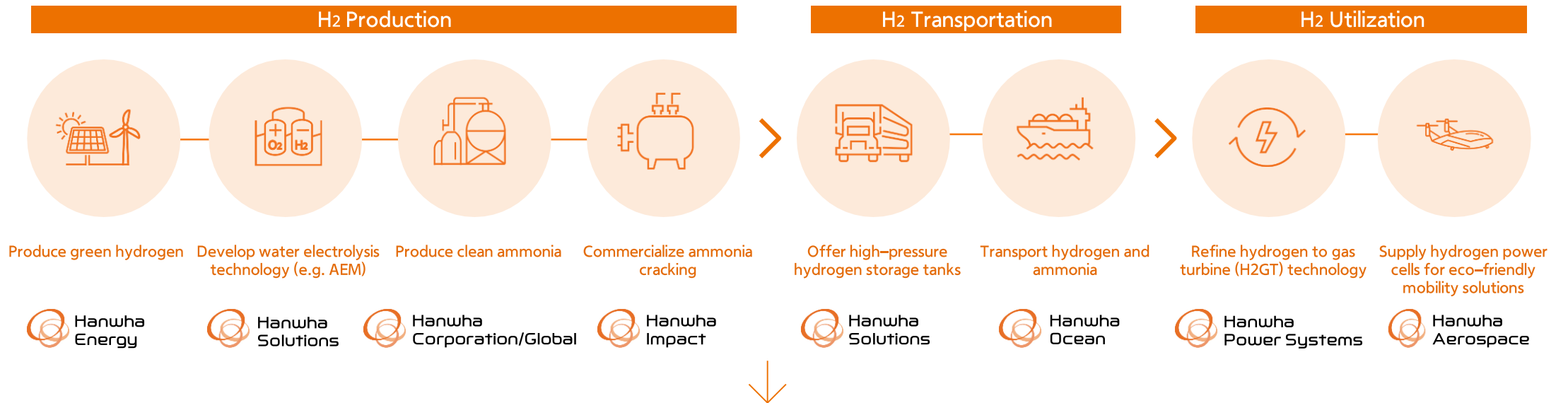


Green Hydrogen
Business



Hydrogen Business Value Chain

Hanwha promotes systematic projects to revitalize the hydrogen economy by leveraging clean hydrogen production and supply capabilities through our renewable energy business.

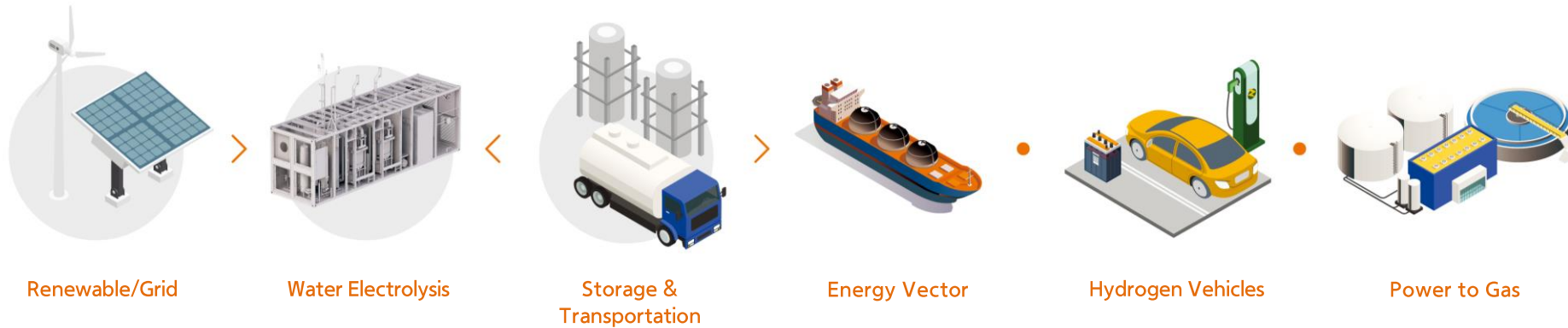


Hanwha's clean hydrogen business will join its existing eco-friendly energy portfolio to further its contribution to global carbon neutrality efforts.

Chemical Division Hydrogen Business

By leveraging Hanwha Group's hydrogen business capabilities, we have advanced into the hydrogen-based business using water electrolysis technology and moved closer to becoming a top-tier global water electrolysis technology company.

Business Model

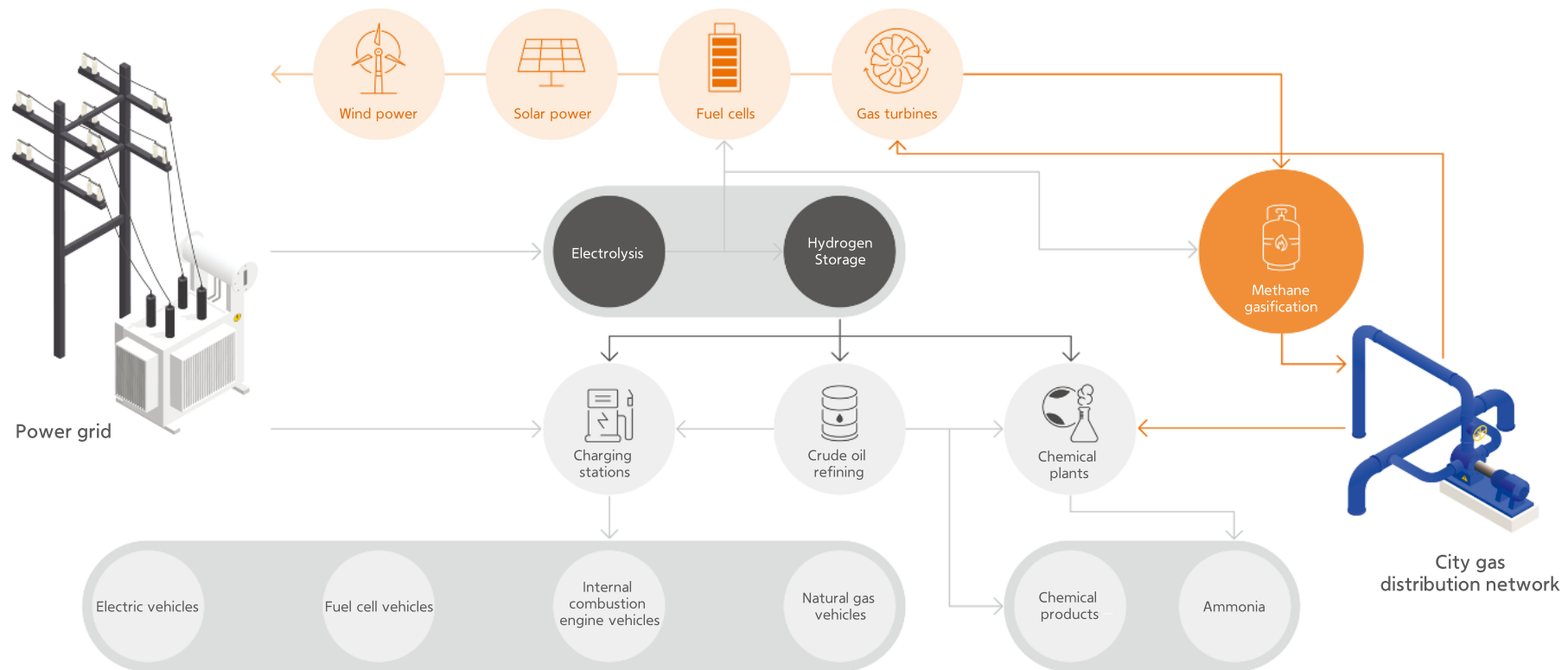


Technology Development

Source Material		MEA	Stack / System
Catalyst	Anion exchange membrane	Developing scale-up process technology	Designing and producing stack
Developing non-PGM catalyst and activating high catalysis	Developing highly-durable materials and film forming technology	Optimizing large-scale active area MEA fabrication and developing R2R continuous process technology	Flow field analysis and design/developing cell and system unit

Chemical Division Hydrogen Business

P2G Concept

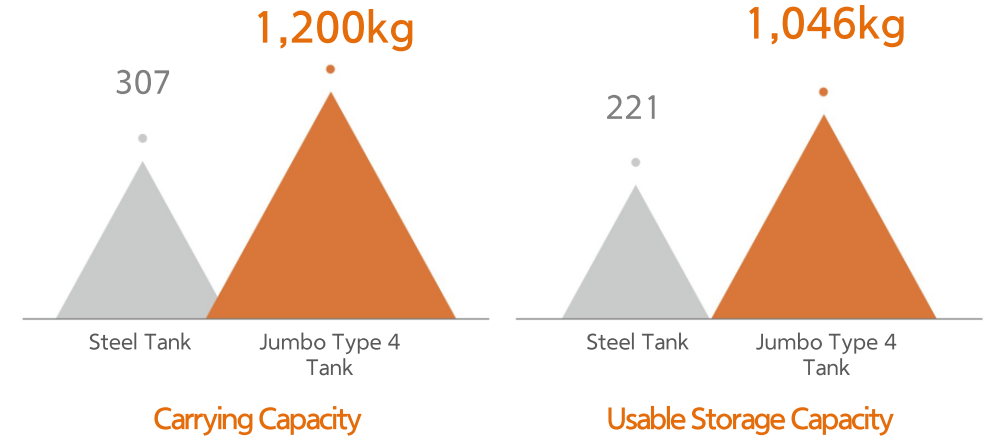


Chemical Division Hydrogen Business

As the No.1 global company for high-performance and lightweight composite materials, the Chemical Division provides green hydrogen energy storage and transportation solutions.

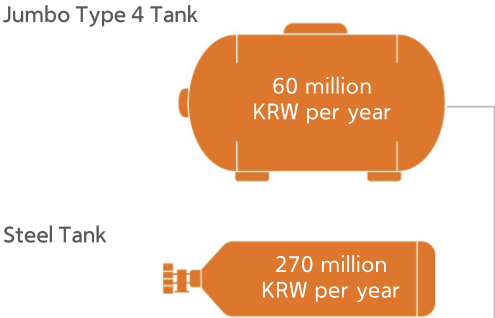
High-pressure Jumbo Tube Skid Container Capacity

Hydrogen Transportation Capacity Comparison



Annual Transportation Cost Comparison of Tube Skid Containers

Comparison of annual transportation costs when operating a charging station for 300 days per year, requiring 500kg hydrogen per day:



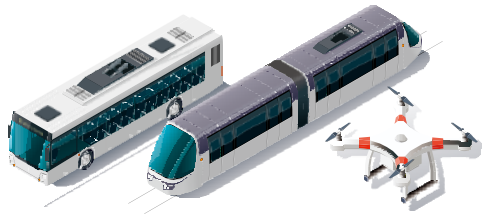
Type 4 Hydrogen Tank (High-pressure container made of plastic liner and carbon fiber composite materials)
– Maximum working pressure: 990 bar / Maximum tank capacity: 3,000 liters
– High reliability and safety performance / High transportation efficiency due to lighter weight compared to steel

Chemical Division Hydrogen Business

Chemical Division develops high-pressure containers made of composite materials, which can be efficiently produced to be used across a variety of fields ranging from hydrogen production, transportation, and storage.

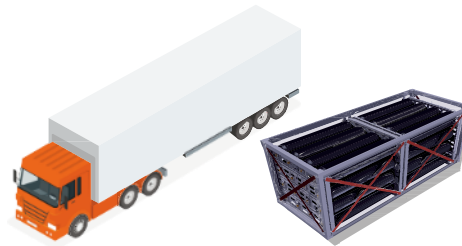
Applications

Hydrogen Fuel Storage Solution



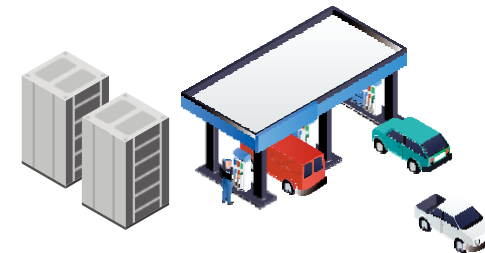
- High-pressure tank (Working pressure at 350~700 bar)
- Applications (Hydrogen fuel tanks for hydrogen fuel cell drones, passenger cars, commercial vehicles, trains, and ships)

Hydrogen Transportation Solution



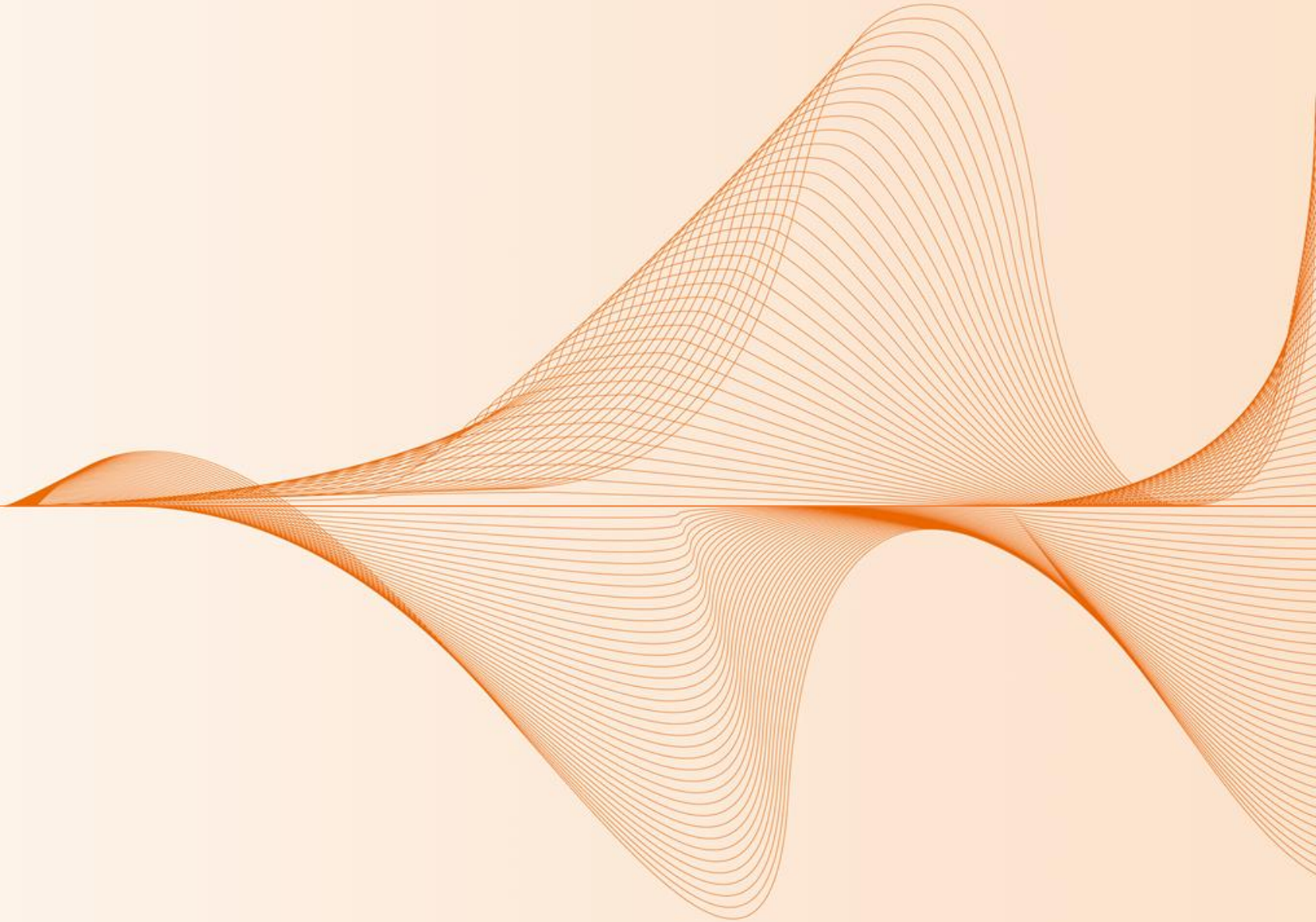
- High-pressure tube skid (Maximum transportation up to 1,200kg)
- More than 4 times the transportation efficiency compared to steel products
- Lightweight and increased storage capacity
- 20FT, 40FT customized modules available

Hydrogen Storage Solution for Charging Stations



- Ultra-high-pressure tank (Maximum pressure up to 990 bar)
- Package-type design
- High-space efficiency

Social Contribution

An abstract graphic consisting of numerous thin, orange lines that form a series of overlapping, wavy shapes. The lines are arranged in a way that creates a sense of depth and movement, resembling a stylized wave or a series of concentric, flowing curves. The overall effect is a dynamic and organic pattern that fills the right side of the image.



Social Contribution

We believe in Hanwha's founding philosophy of "Contributing to the nation and society through business" and our spirit of "Trust and loyalty" above all else. Building on these, we have established a strong bond with the community. And now, this is most evident in our philosophy of "Going further together," through which we do our best to fulfill our social responsibilities as a corporate citizen.

Social Contribution Vision

We are committed to discovering solutions for a better future for everyone.

Social Contribution Mission

We pursue sustainable solutions for environmental and social issues.

Social Contribution

As a leading company combating climate change through smart and economical green energy technologies, Hanwha Solutions operates a social contribution program to address climate change.

Agreement with the Korea National Park Service

We have signed an agreement to pursue carbon neutrality and ecological sustainability with the Korea National Park Service. In addition to ecological monitoring, we supply renewable energy to key facilities to reduce carbon in national parks while improving energy efficiency for villages in national parks.



Environmental Solutions for the Green Earth

In an alliance with ChildFund Korea, we operate a program to combat climate change. The program runs campaigns to inform people of climate crisis in our daily lives. It also provides online education to inform climate crisis and supports energy efficiency initiatives for the vulnerable by climate crisis.



Building a low-carbon agricultural model for the future

In collaboration with the Nonghyup Central Association, we have created an innovative agricultural technology that integrates renewable energy and smart farm technology to enhance farmers' profitability and address climate change. The Yangpyeong Smart Agriculture Center serves as the starting point for the roll-out of solar smart farms across the nation. We are also supporting the creation of profit models and the marketing of agricultural products using farming-type solar.



Social Contribution

Based on our philosophy of “Going further together,” Hanwha Solutions pursues a better future for everyone. We are committed to corporate social responsibility and growing together with the community, as we lead in continuous and authentic social contribution activities.

Community Program (Yeosu)

- Support for poor fire-fighting facilities, environmental improvement, and welfare for communities in the islands
- Installation of a communal refrigerator that allows community members to autonomously access various necessities



Community Program (Ulsan)

- Provide a program to help socially isolated young adults adapt to society
- Support customized programs for patriots and veterans, persons with disabilities, and victims of violent crimes
- Operate a Carbon Neutrality Corps to protect and expand carbon sinks



Community Program (Chungcheong)

- Operate a sports club for the disabled
- Support solar power plants for vulnerable homes
- Manage eco-friendly programs such as ecological forest restoration and alien species removal
- Facilitate eco-friendly bean bag chairs production



Employee Volunteering

- Participate in the Sharing Hope Campaign and Good Workplace by the Community Chest of Korea
- Operate a Making a Brighter World Fund matching grant program



Social Contribution

As a global leader in renewable energy, we actively address climate change using the experience and expertise gained from developing world-class solar technology. Our efforts include supplying practical solutions and helping raise public awareness of the pressing need for sustainable development.

Creating a Clean School

To establish a learning environment with clean air, green solutions like solar power have been implemented



Hanwha Solar Forest

Seven forests have been created in South Korea, China, and Mongolia, covering an area of 1.33 million square meters and planting around 500,000 trees



Solar Beehive

Carbon-reducing beehives have been introduced as a way to support biodiversity conservation and address the issue of climate change



Clean Up Mekong

Clean Up Mekong campaign has been initiated to tackle one of the persistent environmental challenges in the world – water waste



