



**GLOBAL GREEN  
ONE PIONEER**

**Net Zero by 2045**

2022 HYUNDAI E&C Net Zero REPORT



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#### Cover

**Marina South Mixed Use Development**

**Country:** Singapore

**Certification:**

Green Mark Platinum |  
LEED Platinum

#### Interactive User Guide

This Net Zero Report has been published as an interactive PDF file that offers “Go to Page” and “Shortcut” functions with links to pertinent webpages.

\* This report is provided in the form of a printout and a PDF file.  
The PDF file can be downloaded on our website.



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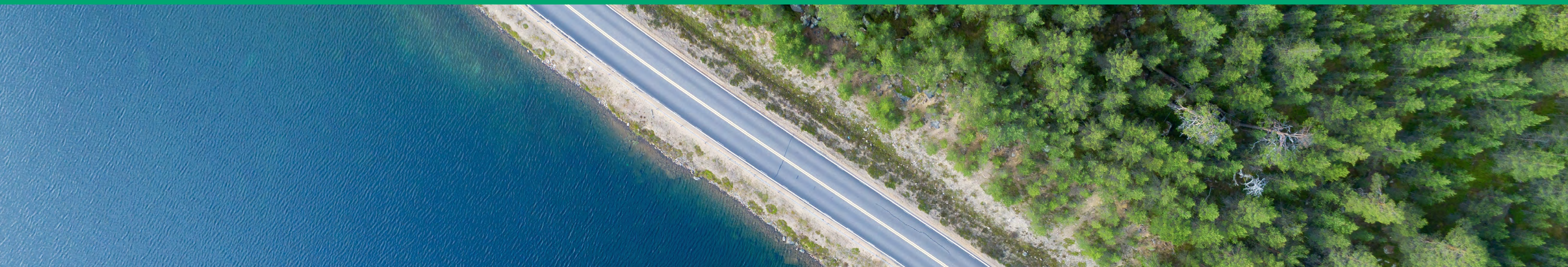
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# Net Zero Message from Hyundai E&C's Board of Directors

## Hyundai E&C leading the global response to climate change

Climate change is the most vital challenge facing humankind, and carbon neutrality is our starting point in moving toward a sustainable future. Hyundai E&C is well aware of the socio-economic impact effected by the climate change and has considered the changes on the construction market and opinion of shareholders to be important.

Starting with the establishment of the GHG inventory in 2010, Hyundai E&C became the first among Korean construction companies to achieve ISO 50001 certification (energy management system) in 2012, applied the system to its construction sites and declared a Coal Exit in 2021, demonstrating its leading role in eco-friendly areas of the construction industry. Hyundai E&C's efforts were recognized as it joined the "CDP Korea Hall of Fame" by obtaining the Leadership grade for 8 years from the CDP, an initiative that aims to disclose information on climate change.

Hyundai E&C is willing to take a leap toward being the "Global Green One Pioneer" by proactively reacting to climate change and lead a sustainable future as a top global construction company by announcing the first declaration of carbon neutrality among the listed companies of construction sector in Korea.

### 1. SBTi\*-based Net Zero by 2045

Hyundai E&C has declared the goal of Carbon Neutrality by 2045 based on the SBTi by the resolution of the Board of Directors on October 26, 2022 as the first to do so among listed construction companies in Korea. Hyundai E&C is also the first to publish a net zero Report that outlines net zero targets and medium-/long-term plans including Scope 1 & 2 and Scope 3 (GHG emissions in the value chain).

### 2. Transition to renewable energy and improvement of energy efficiency in operation of construction sites

Hyundai E&C will establish an low-carbon construction site by switching the use of electricity and oil from renewable energy through the installation of solar panels on office roofs at construction sites and the transition to eco-friendly vehicles and by advancing the GHG management system and smart construction technologies, based on detailed plans under G-OPIS\*, which is the net zero promotion strategy

released in this Net Zero Report. In addition, we will review the implementation of the targets every year and republish this report considering the changes in the construction market every 5 years.

### 3. Expansion of low-carbon portfolio based on EPC competitiveness

Hyundai E&C will lead the transition to low-carbon industries as the "Total Solution Creator" encompassing all construction areas based on its EPC competence in green construction. Global construction trends are rapidly changing in line with changes in the external environment such as energy transition and climate change. To keep up with these trends, we will expand the energy transition areas such as offshore wind power and hydrogen, as well as low-carbon construction areas including zero energy buildings and CCUS\*. Based on our construction capabilities across all stages of the energy process, we will push ahead with renewable energy trading business and lead in the future energy transition market.

### 4. Establishment of systematic net zero governance

Hyundai E&C establishes a reporting system through the Corporate Governance & Transparent Management Committee composed entirely of external directors to monitor climate change-related risks on a regular basis. We will take a close look at the implementation of net zero targets every year and transparently share the results with our shareholders in and outside the company, so that our Carbon Neutrality declaration can be promoted in a constant and consistent way.

To achieve net zero in the construction industry, which operates based on receiving orders, it is necessary to form a consensus among a multitude of shareholders across the entire construction value chain. We hope that this Carbon Neutrality declaration will serve as a catalyst to expand low-carbon projects across the entire construction market. We will strive to take on social responsibilities as a global leader in the construction industry, communicate with our shareholders and internalize sustainable management.

Thank you.

\* CDP: A project designed to disclose information on global climate change, operated by CDP, a non-profit organization based in the United Kingdom

\* SBTi (Science Based Targets initiative): A global initiative to establish GHG emissions targets in line with climate science

\* G-OPIS: Hyundai E&C's net zero promotion strategy (Green Operation/Portfolio/Investment/Spread)

\* CCUS (carbon capture, utilization and storage)

### Net Zero Declaration of Hyundai E&C's Board of Directors (Oct. 26)

Hyundai E&C CEO	Yoon Young-Joon	
Internal director	Kim Kwang-Pyung	
Internal director	Hwang Jun-Ha	
External director	Kim Jae-Jun	
External director	Hong Dae-Sik	
External director	Cho Hye-Kyung	
External director	Jung Moon-Ki	



# CEO Message



## Hyundai E&C will lead the era of carbon neutrality based on its green construction capabilities.

Hyundai E&C has proved its potential around the world as Korea's foremost and global leading builder by successfully conducting about 870 overseas projects in 62 countries with an indomitable spirit since its foundation in 1947.

The legislation of carbon neutrality worldwide is causing the infrastructure market to change and the construction industry is expected to shift toward low-carbon and green projects based on conventional EPC technologies. Regarding these changing times as an opportunity, not a risk, we are embarking upon a new challenge through this carbon neutrality declaration.

This report is all the more meaningful in that it is the first carbon neutrality report published by a Korean construction company. This report is designed to not only present the criteria and content of a global standard, but also propose the direction toward carbon neutrality to a diverse range of shareholders for the first time in the Korean construction industry.

Under the environmental vision of "Global Green One Pioneer," Hyundai E&C has continuously prepared a wide range of green projects. Hyundai E&C will diversify its low-carbon portfolio based on EPC-related technological capabilities accumulated in such areas as renewable energy, hydrogen business, zero energy buildings and CCUS.

Hyundai E&C pledges to faithfully fulfill its roles and responsibilities as a member of society and kindly asks for your affectionate support and encouragement on our journey toward 2045.

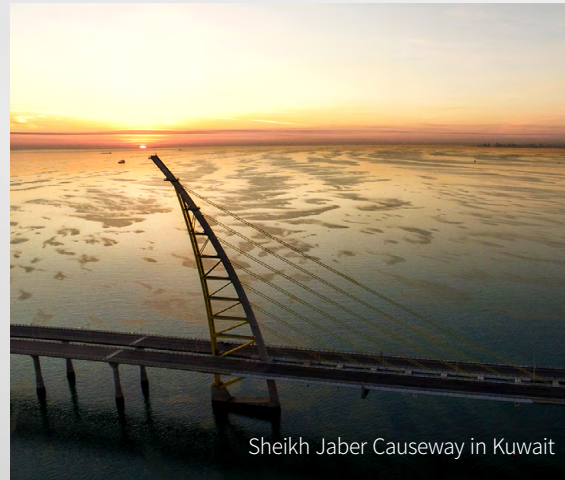
Thank you.

Hyundai E&C CEO **Yoon Young-joon**





# Net Zero by 2045



Sheikh Jaber Causeway in Kuwait



Sarulla Geothermal Power Plant in Indonesia



Emergency Management Education &amp; Research Complex

## We

### Participation in global response to climate change

Climate change is one of the most critical issues that all humankind must join forces to grapple with. It has far-reaching implications for all members of society and requires engagement and cooperation of various stakeholders. Hyundai E&C aims to join worldwide efforts to respond to climate change with a sense of responsibility as a global leader in the construction industry. Starting with this carbon neutrality declaration, we will build a sustainable tomorrow.

## Build

### Establishment of SBTi-based net zero targets

Hyundai E&C aims to contribute to the Paris Agreement and its goal to limit the global temperature increase to 1.5 °C compared to pre-industrial levels. To this end, we have set out net zero targets in accordance with the SBTi, a global standard for GHG reduction targets. We will scale up the use of renewable energy by expanding rooftop solar power and promoting renewable energy trading business, and achieve net zero in a systematic way by enhancing our low-carbon construction capabilities.

## Tomorrow

### Setting up the sustainable portfolio

Due to Climate change, conventional industries are declining and the renewable energy and low-carbon markets are expanding. To keep up with this change, Hyundai E&C aims to realize new possibilities for the future. We will set out to expand a sustainable portfolio that includes renewable energy, hydrogen business, zero energy buildings and CCUS, based on the competitiveness that we have accumulated in green EPC areas.



# Background and Emission Datas

Amorepacific Headquarters

Country: South Korea

Certification: Highest grade in G-SEED | A rating in Building Energy Rating | LEED Gold

07 Background  
08 GHG Emissions



# Background

## Responsibilities and roles of construction industry in climate change response

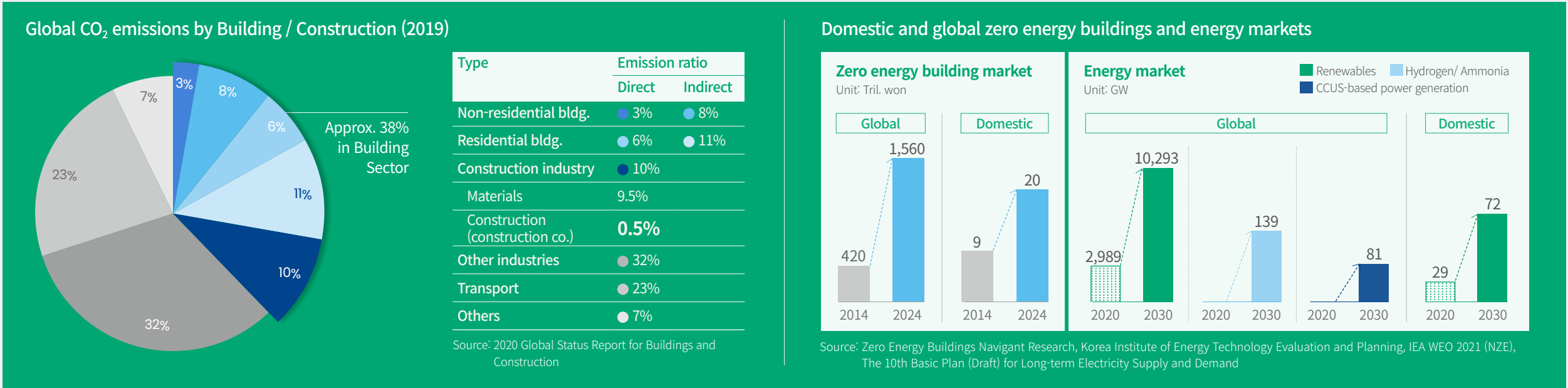
Hyundai E&C will reach carbon neutrality in the value chain by taking into account characteristics of the construction industry with high upstream and downstream emissions

The construction industry carries greater significance at this time of the deepening climate crisis and energy transitions. According to the International Energy Agency (IEA), Scope 1 & 2 emissions by construction companies account for about 0.5% of CO<sub>2</sub> emissions worldwide, and Scope 3 emissions involved in building operation and materials about 38%. As such, upstream emission sources (construction materials phase) and downstream emissions sources (building operation phase) exert more influence over climate change than direct and indirect emissions by construction companies. Hyundai E&C aims to achieve carbon neutrality in the value chain by taking account of the characteristics of the construction industry. We will achieve carbon neutrality by expanding our green portfolio including zero energy buildings, renewable energy and CCUS, thereby fulfilling our responsibilities and roles as a top global construction company.

## Transition to green businesses in line with expanding low-carbon and renewable energy market

Hyundai E&C will lead the transformation into a carbon neutrality society by expanding its green portfolios.

Climate change crisis has direct and indirect effects on business such as stronger regulations on GHG emissions and the decreasing demand for conventional construction portfolios. At the same time, new construction markets including zero energy buildings, renewable energy and CCUS are expected to grow rapidly. In line with these market changes, Hyundai E&C aims to expand into the green construction business, based on the portfolio that we have amassed in the EPC sector, and further lead the transition to a carbon neutrality society.





# GHG\* Emissions

\*GHG: Greenhouse gases such as carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) that produce a greenhouse effect.

Hyundai E&C established the GHG inventory system in 2010 as the first of its kind in the Korean construction industry. Currently, Hyundai E&C has been calculating not only its domestic and Scope 1 & 2 emissions, but also overseas and Scope 3 emissions voluntarily. We are making efforts to monitor and manage environmental performance at all of our construction sites through the operation of an IT-based management system and also discover GHG-reduction items at construction sites each year.

In 2021, Hyundai E&C emitted a total of 9.58 million tons of GHG consisting of 300,000 tons of Scope 1 & 2 emissions and 9.28 million tons of Scope 3 emissions. Scope 1 makes up about 60% of Scope 1 & 2 emissions, caused by the use of oil at construction sites. Emissions generated by the procurement of construction materials and the operation of completed buildings account for 31.9% and 55.0% of our value chain emissions, respectively. Taking into account these characteristics, we have established systematic net zero action plans.

## Hyundai E&C GHG Emissions (2021)

### Production and transport of materials

#### Scope 3 | Upstream emissions 40.7%

### Procurement of materials and services

- Manufacturing of construction materials
- Use of diesel by suppliers

### Transportation of materials

- Transport of materials and equipment

Type	Scope 3	
Procurement of materials and services	3.06 mil. tons	31.9%
Transport of materials	780,000 tons	8.1%
Other upstream sources	60,000 tons	0.7%
<b>Total</b>	<b>3.90 mil. tons</b>	<b>40.7%</b>


### Headquarters and construction sites

#### Scope 1&2 | Direct/Indirect emissions 3.1%

Use of oil, etc.		Use of power and steam, etc.	
<ul style="list-style-type: none"> <li>Use of construction equipment, etc.</li> <li>Scope 1</li> </ul>		<ul style="list-style-type: none"> <li>Procurement of power and steam</li> <li>Scope 2</li> </ul>	
Type	Scope 1		Scope 2
Domestic headquarters/ construction sites	10,000 tons	0.1%	70,000 tons 0.7%
Overseas construction sites	160,000 tons	1.7%	60,000 tons 0.6%
<b>Total</b>	<b>170,000 tons</b>	<b>1.8%</b>	<b>130,000 tons 1.3%</b>


### Use and disposal of products

#### Scope 3 | Downstream emissions 56.2%



### Operation of completed buildings

- GHG emitted by building operation



### Disposal of completed buildings

- GHG emitted by building demolition

Type	Scope 3	
Use of products sold	5.26 mil. tons	55.0%
Disposal of products sold	110,000 tons	1.1%
Other downstream sources	10,000 tons	0.1%
<b>Total</b>	<b>5.38 mil. tons</b>	<b>56.2%</b>

### Total emissions

**9.58 mil. tons**



Scope 1 emissions	170,000 tons	1.8%
Scope 2 emissions	130,000 tons	1.3%
Scope 3 emissions	9.28 mil. tons	96.9%
<b>Total emissions</b>	<b>9.58 mil. tons</b>	<b>100%</b>

\* Scope 1&2 and some of Scope 3 emissions (limited to emissions by suppliers) for domestic and overseas business sites have been verified by a third party.

\* Emissions generated from the operation of completed buildings were calculated by product type (housing/building, infrastructure and plants).





# Net Zero Target and Strategy

Green Smart Innovation Center

Country: South Korea

Certification: Highest grade in G-SEED | LEED Platinum

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# Our Target

Hyundai E&C has set out the target of Net Zero by 2045, reflecting the criteria of SBTi.

We will reexamine our reduction target every 5 years in the light of the advancement of carbon neutrality across the entire construction value chain.

## Proactive response to climate change (Scope 1&2)

Reduction target	Base year	Base-year emissions
<b>46.2%</b> reduction by 2030	<b>2019</b>	Approx. <b>600,000 tons</b>

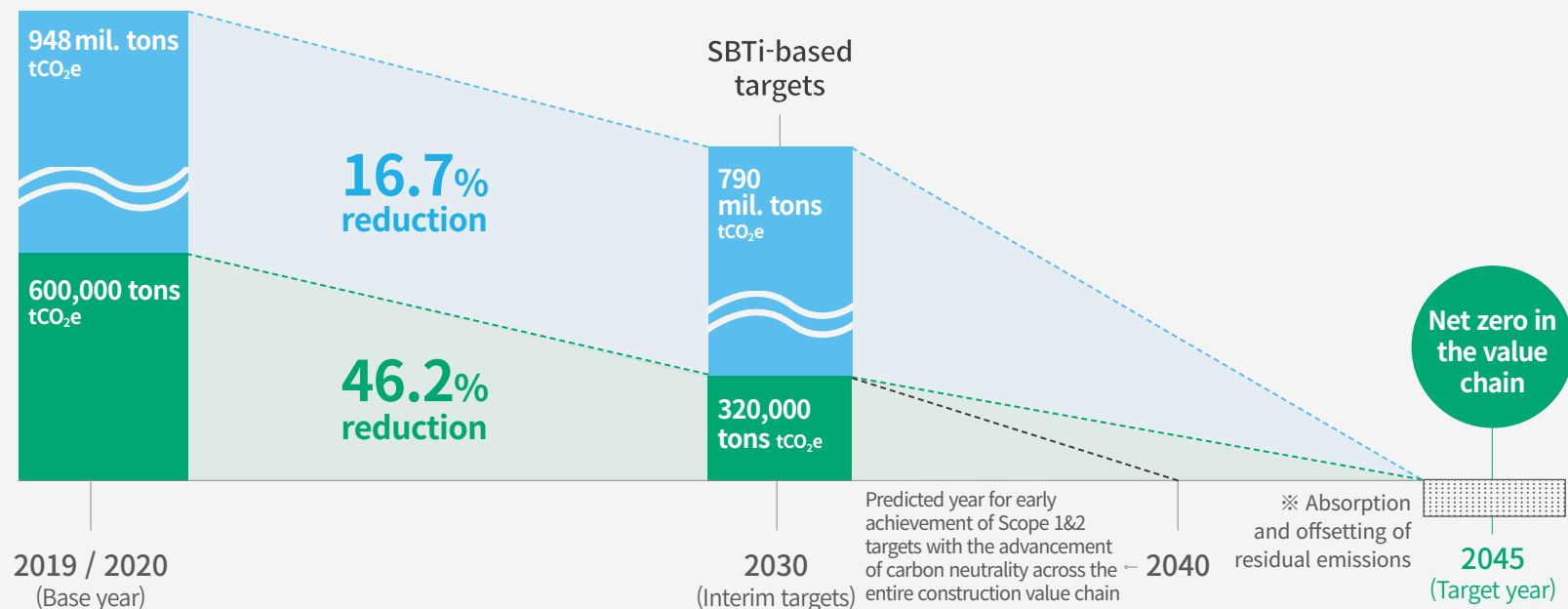


## Leading low-carbon construction ecosystem (Scope 3)

Reduction target	Base year	Base-year emissions
<b>16.7%</b> reduction by 2030	<b>2020</b>	Approx. <b>948 mil. tons</b>

※ As the construction industry is based on placing and receiving orders, achieving carbon neutrality will require cooperation and innovation in the relevant value chain. Hyundai E&C will endeavor to take the lead in the low-carbon construction ecosystem and accomplish higher net zero targets through win-win growth with our stakeholders.

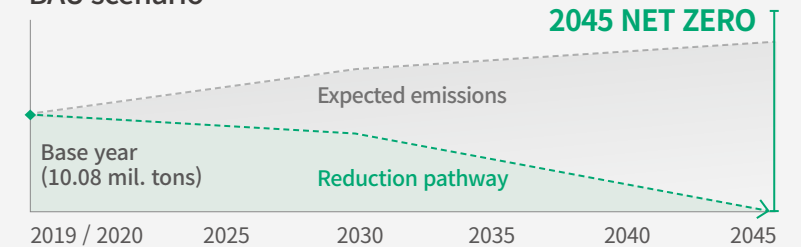
### Hyundai E&C Net Zero by 2045 target



### Criteria for establishment of SBTi target

Type	2030			2045		
	Targets	Coverage	Yearly reduction rate	Targets	Coverage	Yearly reduction rate
Scope 1&2	1.5°C	100%	4.2%	1.5°C	100%	100%
Scope 3	WB 2°C	67%	2.5%		90%	90%

### BAU scenario\*



\* Based on growth outlook for domestic and global construction industries (by 2030, 3.88%) and domestic economic growth forecast (by 2040, 1.79% / by 2045, 1.31%)

\* BAU (business as usual): GHG emissions forecast



# Our Vision

## Carbon Neutrality Implementation: G-O.P.I.S

Hyundai E&C has set out the implementation strategy to achieve the carbon neutrality, G-OPIS, under the vision of “Global Green One Pioneer: Net Zero by 2045”. The aforementioned strategy consists of ① **Green Operation** ② **Green Portfolio** ③ **Green Investment** ④ **Green Spread**, and the step-by-step action plans including to reduce greenhouse gas emissions and expand the green business portfolio is covered to the strategy.

Vision

## Global Green One Pioneer: Net Zero by 2045

Target

Achieving SBTi-based Carbon Neutrality by 2045 in areas including Scope 3

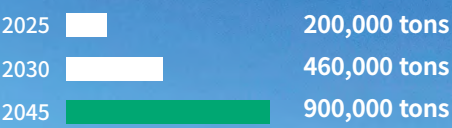
Implemen-  
tation  
strategy

Key tasks



# Green Operation

## Scope 1&2 emission reduction

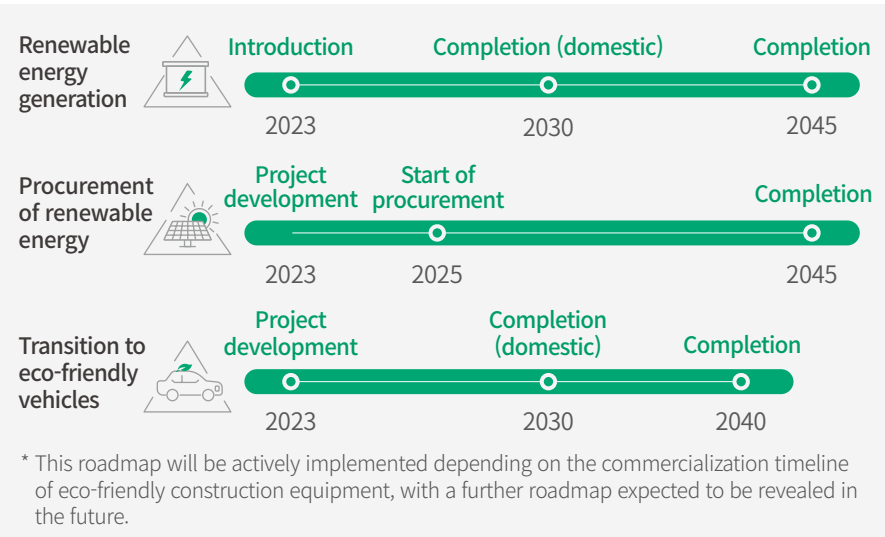


## Transition to renewable energy

Hyundai E&C will ramp up the use of renewable energy through the expansion of renewable energy generation and procurement of renewable energy, in addition to the electrification of oil-powered equipment.

A transition to renewable energy as a substitute for fossil fuel sources is the most crucial means to reach carbon neutrality. Hyundai E&C will directly expand the use of renewables by installing solar panels on office roofs at construction sites and unused sites and increasing renewable energy procurement such as REC and PPA. In addition, we will replace the use of oil with renewable energy through the electrification of vehicles and construction equipment.

## Roadmap for renewable energy transition



## Establishment of low-carbon construction operation system

Hyundai E&C will advance its GHG management system and strengthen its low-carbon construction capabilities.

To systematically manage GHG emissions, field data should be subdivided into smaller modules to be calculated. Hyundai E&C is working to automate and further advance the GHG emission calculation tool, so that GHG emissions can be managed individually for each project and construction.

Hyundai E&C continues to strengthen its low-carbon construction capabilities with regard to smart construction technologies and OSC methods\*. We are committed to optimizing all construction processes ranging from construction and procurement to logistics through the wide-ranging application of smart construction technologies such as BIM\*, IoT (Internet of Things) and robotics to construction sites and to minimizing GHG emissions by developing OSC methods.

\* OSC (off-site construction): This method aims to standardize construction elements and fabricate and assemble them at factories.

\* BIM (building information modeling): This process is designed to provide a variety of information throughout the entire construction lifecycle.

## Hyundai E&C's patents on low-carbon construction technologies

Type	Details	Year
Smart construction technologies	Review method for structural adequacy using variables in high-rise buildings	2017
	BIM-based construction management system	2019
	Manufacturing method for atypical landscaping structures using 3D printing	2020
OSC methods	Modular toilets and construction method	2019
	Combination structure and method for unit modules in modular buildings	2019
	PC method for transfer girders for joints in underground car parks	2019
Renewable energy process technologies	Structure designed to install solar cells in multi-unit housing	2019
	Wall solar panel system	2020
	Structure designed to hold cassette-type solar panel modules	2020
	Manufacturing and installation method for improved bucket anchors of floating solar panels	2021



# Green Portfolio

## Scope 3 emission reduction



## Expansion of EPC-based green portfolio

**Hyundai E&C is expanding its green portfolio in various areas based on its accumulated EPC competitiveness.**

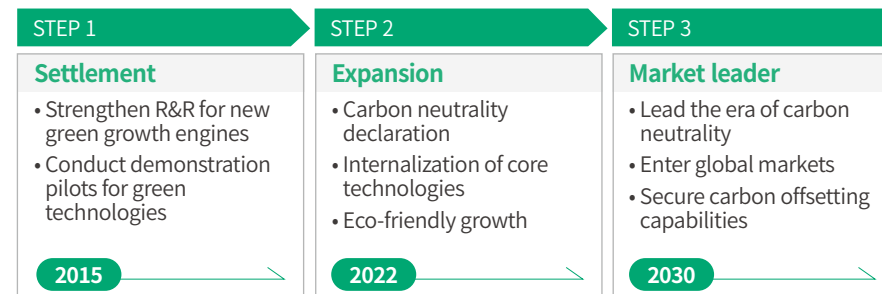
Hyundai E&C is devoted to implementing a wide range of green projects in housing, building, plant and infrastructure sectors. By leveraging the EPC competitiveness that we have built in each sector, we will seek to increase green building projects (zero energy buildings), low-carbon-based projects (renewables and CCUS), and eco-friendly projects (water reuse and desalination).

Each year, we add a significant number of green-certified buildings to our portfolio. For example, the construction of Hillstate Lake Songdo Complex I marked Korea's first high-rise, zero energy multi-unit housing and helped expand our zero energy building portfolio. Moreover, the excellence of our FEED\* engineering capability has been recognized as we have received an order to build the Boryeong Blue Hydrogen Production Plant. To top it off, we are also conducting a national project on CO<sub>2</sub> capture, which is enhancing our technological prowess in CCUS.

\*FEED (front-end engineering design) refers to basic engineering conducted prior to EPC.

## Green portfolio expansion strategies

### Global Green One Pioneer

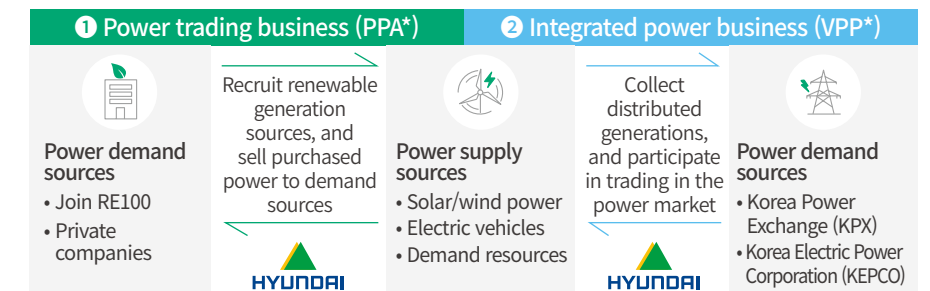


## Leading the energy transition market

**Hyundai E&C is enhancing its business capabilities across the entire renewable energy value chain, based on which we will promote our renewable energy trading business.**

Hyundai E&C has laid the foundation for providing the total solution for renewable energy power generation by implementing the Seosan Solar Power Plant Project across the entire process ranging from project development and EPC to operation and maintenance (O&M). Our implementation of the Southwest Sea 60MW Offshore Wind Power Demonstration Complex Project allowed us to secure the related technical prowess, while we are also in charge of EPC in the Jeju Hallim 100MW Offshore Wind Farm Project as well as investing in the country's largest offshore wind farm as a developer. Moreover, Hyundai E&C is embarking on promoting its renewable energy trading business based on its technological competitiveness across the entire renewable energy value chain. We intend to secure power generation forecast and VPP (virtual power plant) technology by joining hands with domestic companies, and help guarantee the supply of renewable energy and expand the market through effective management.

## Promotion of renewable energy brokerage (PPA)



\*PPA: Power purchase agreement

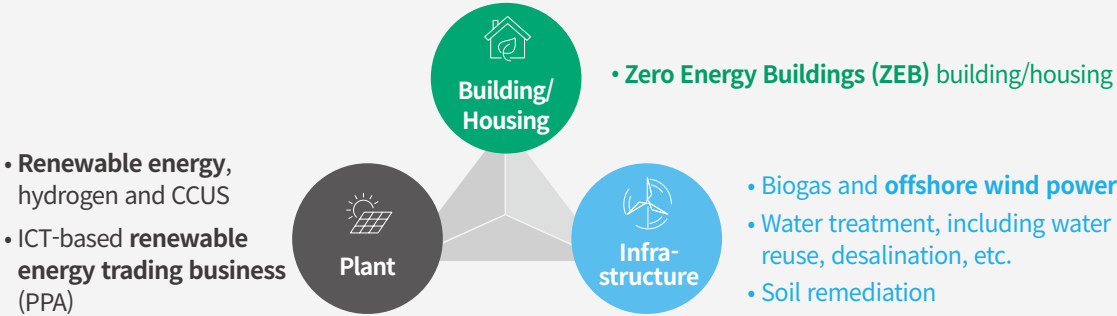
\*VPP: Virtual power plant for integrating and managing various distributed generations



Green Portfolio

# Inside the Portfolio

## Expansion of EPC-based eco-friendly businesses



### Major green projects

Business sector	Sustainable projects			Key projects	Note
	2019	2020	2021		
Building/Housing	52	52	77	<ul style="list-style-type: none"> <li>Hillstate Lake Songdo Complex I</li> <li>Amorepacific Headquarters</li> <li>LH Headquarters</li> </ul>	Achievement of building certifications such as G-SEED, Building Energy Rating, LEED, etc.
Plant	8	7	9	<ul style="list-style-type: none"> <li>Sarulla Geothermal Power Plant</li> <li>Seosan Solar Power Plant</li> <li>Daesan Biomass Power Plant</li> </ul>	Eco-friendly projects such as renewable energy, hydrogen, CCUS, etc.
Infra-structure	10	9	9	<ul style="list-style-type: none"> <li>Bello Wastewater Treatment Plant in Colombia</li> <li>Southwest Sea Offshore Wind Power Plant</li> <li>Camp Market Soil Remediation</li> </ul>	Eco-friendly projects such as renewables, water treatment, soil remediation, etc.

### Plant



#### Seosan Solar Power Plant

##### Korea's first BESS\*-linked, utility-scale solar power plant

- The largest power generation capacity of 65MW among the country's single solar power plants, and ESS capacity of 140MWh (as of completion)
- Demonstrated total solution capability ranging from project development and EPC to O&M

\* BESS (battery energy storage system): This system is designed to store and discharge energy through rechargeable batteries.



#### Optimization and demonstration of hybrid CO<sub>2</sub> capture and liquefaction process for blue hydrogen production

##### Demonstration of the CO<sub>2</sub> capture and liquefaction process with a daily capacity of 100 tons, and commercial-grade process design

- Developed and demonstrated technologies for the CO<sub>2</sub> capture and liquefaction process
- Internalized process design technologies for commercialization with a yearly capacity of 1 mil. tons
- Targeted the extended application in business sites with large-scale CO<sub>2</sub> emissions



#### Jeonbuk Water Electrolysis-based Hydrogen Production Base

##### Plan to secure FEED capabilities to build a 100MW commercial-grade hydrogen plant

- Korea's first clean hydrogen production base for commercialization
- Conducted design, construction, procurement of major materials, etc.
- Built a 2.5MW hydrogen production base with a daily capacity of over 1 mil. tons



## Green Portfolio

# Inside the Portfolio

### Building / Housing



#### Hillstate Lake Songdo Complex I

##### Korea's first high-rise zero energy multi-unit housing

- Obtained ZEB Grade 5 certification, the first for multi-unit housing in Korea
- Applied passive\* and active\* techniques, in addition to BEMS, etc.
- Received the Ministerial Award of the Ministry of Land, Transport and Maritime Affairs at the 2nd Korean Intelligent Building Awards

\* Passive techniques aimed at preventing energy loss to the outside environment

\* Active techniques aimed at independently producing energy in an eco-friendly way



#### Amorepacific Headquarters

##### Eco-friendly landmark built with world-renowned design

- Collaborated with the British architect David Chipperfield
- Received the highest grade in G-SEED, the most efficient A rating in Building Energy Rating, and LEED Gold



#### LH Headquarters

##### Future-oriented building with high energy savings and full BIM implementation

- Received the highest grades in Green Building Certification, Building Energy Rating, Passive House Certification, Intelligent Building Certification, etc.
- Optimized construction by applying BIM to the entire process for the first time in Korea

### Infra-structure



#### EPC of offshore wind turbines and foundations in the Southwest Sea Offshore Wind Power Demonstration Complex

##### Installation of 60MW offshore wind foundations and generators (3MWx20)

- Korea's first offshore wind power demonstration complex
- Constructed jacket-type\* foundations, and applied grouting\* method
- Extensive experience in building jacket-type structures, and technological prowess in harbor construction

\* The method of fixing a large-scale steel structure called a "jacket" to the seafloor

\* The method of injecting cement, etc. into the soil using high pressure



#### Jeju Hallim Offshore Wind Farm

##### Construction of 100MW large-scale offshore wind power plant (5.56MWx18)

- Korea's largest offshore wind power project
- Developed vessels dedicated to installing offshore wind turbines
- Improved commercial viability through the internalization of advanced construction methods



#### Colombia Bello Wastewater Treatment Plant

##### Construction of energy self-sufficient, eco-friendly wastewater treatment plant

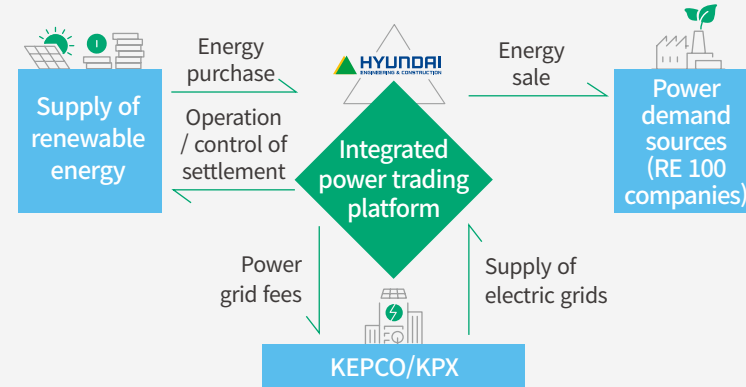
- Established wastewater pretreatment, water treatment, sewage sludge treatment, and energy recycling systems
- Supplied 30% of total power consumption at the facility through the use of biogas by-product
- Build an observatory to offer a rest area for local residents



## Green Portfolio Inside the Portfolio

### Renewable energy trading business model

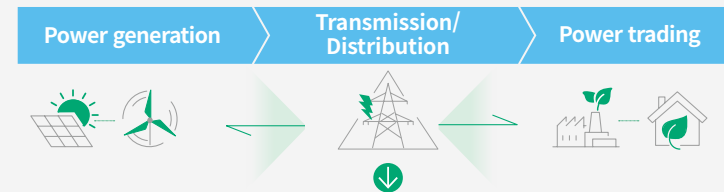
#### Diagram for renewable energy trading business



Type	Details	Expected effects
Supply sources	<ul style="list-style-type: none"> <li>Guarantee stable profits</li> <li>Secure PF</li> </ul>	<ul style="list-style-type: none"> <li>Sign a fair-price contract based on collective power resources</li> <li>Provide stable financial support through long-term PPA</li> </ul>
Demand sources	<ul style="list-style-type: none"> <li>Secure stable renewable energy suppliers</li> <li>Improve efficiency of procurement costs</li> </ul>	<ul style="list-style-type: none"> <li>Ensure large-scale transition to renewable energy resources</li> <li>Alleviate difficulties in managing multiple renewables</li> <li>Offer an optimized mix based on market forecasts</li> </ul>
KEPCO/KPX	<ul style="list-style-type: none"> <li>Manage distributed generation in an optimized way</li> </ul>	<ul style="list-style-type: none"> <li>Optimize the operation of distributed generation</li> <li>Improve power quality</li> </ul>

### Feasibility of renewable energy trading business

Capabilities and performance outcomes for development, EPC and O&M of renewable energy

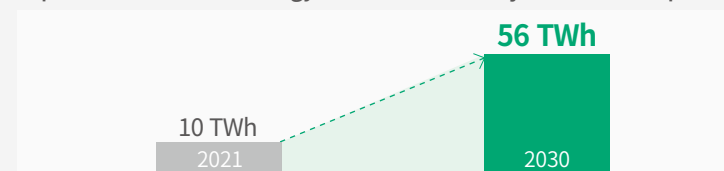


Guarantee EPC competence across the entire value chain of the power business

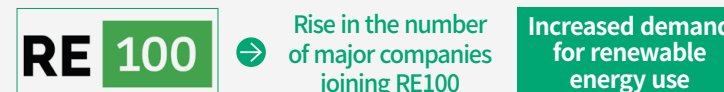
High understanding of the power business based on EPC competence

### Increase in the number of RE100 declarations by leading companies

Expected renewable energy demand from major RE100 companies

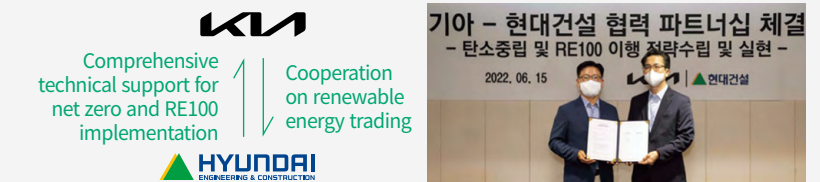


\* Analysis of expected renewable energy demand from domestic leading companies that have joined the RE100 pledge



Signing of a business agreement by Hyundai E&C and Kia to achieve net zero and RE100

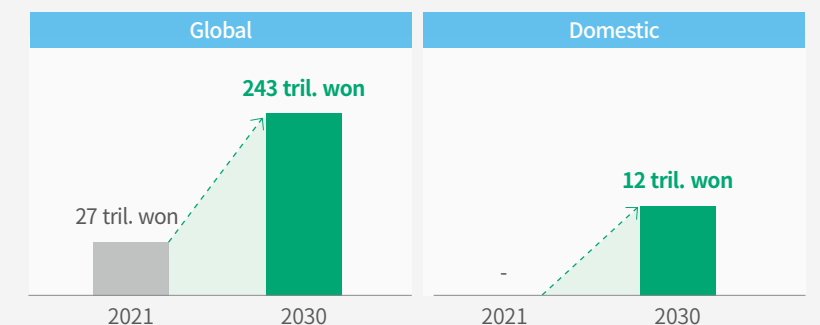
Cooperation on renewable energy trading



Provide RE100 solutions and gain a foothold in the power trading business

### Expansion of renewable energy trading (PPA) market

Direct PPA market size and forecast





# Green Investment

## Expected amount of carbon credit acquisition\*

2025	<div></div>	310,000 mil. tons
2030	<div></div>	460,000 mil. tons
2045	<div></div>	460,000 mil. tons

## Expansion of green businesses through issuance of ESG bonds

**Hyundai E&C stands ready to contribute to the practical reduction of GHG emissions by ramping up sales of sustainable products as part of its expansion of green business projects.**

Hyundai E&C has continuously invested in R&D to develop technologies with the aim of expanding its green portfolio. In the longer term, we will plan to increase our investments in R&D and consider the issuance of ESG bonds to invest the financial resources in renewable energy and eco-friendly areas, thereby driving up the sales of sustainable products to up to 60% of total sales by 2030.

Hyundai E&C will prevent greenwashing by closely reviewing the standards for green businesses including EU-Taxonomy and K-Taxonomy. In addition, we will disclose our businesses transparently distinguishing green sector from transition sector

### Hyundai E&C green projects based on green taxonomy (EU-Taxonomy and K-Taxonomy)

Type	Area	Details
Green Sector	Energy	Production of renewable energy and hydrogen
		Establishment and operation of transmission and distribution infrastructure for renewable energy
		Development of ICT-based energy management solutions, and establishment and operation of relevant systems
	Urban and Building	Development and operation of zero energy cities
		Construction of zero energy and green buildings
	Capture	Establishment and operation of low-carbon internet data centers
		Capture, treatment and permanent storage of CO <sub>2</sub>
	R&D	Research, development and demonstration of core technologies including decommissioning, etc.
	Water	Establishment and operation of water treatment facilities for water reuse, underground water purification, etc.

## Promotion of external projects for carbon credit acquisition (linked to the voluntary carbon market)

**Hyundai E&C will help reduce external GHG emissions by boosting external green projects, and secure the momentum for green businesses through carbon credit acquisition.**

Voluntary carbon markets allow companies without an obligation to reduce carbon emissions to trade carbon credits generated by external projects conducted for social responsibilities and environmental protection. In the longer term, Hyundai E&C will promote external projects in line with its green portfolio, such as renewable energy power plants and CCUS plants. We will reinvest profits generated by carbon credit sales resulting from external projects into other external projects, thereby contributing to reducing global carbon emissions.

### Portfolio of medium-/long-term external projects

Type	Details
Development of new projects (CCUS and low-carbon materials)	<ul style="list-style-type: none"><li>• Development of and investment into CCUS technologies (CO<sub>2</sub> capture, etc.)<ul style="list-style-type: none"><li>- Highly efficient CO<sub>2</sub> capture for blue hydrogen production</li><li>- CCS recycling technologies for degraded facilities in depleted gas fields</li></ul></li><li>• Development of and investment into low-carbon cement and CO<sub>2</sub> mineralization<ul style="list-style-type: none"><li>- Development of eco-friendly materials (non-cement, etc.)</li><li>- Injection CO<sub>2</sub> captured from plants into concrete</li></ul></li></ul>
Expansion of existing projects (Renewable power plants)	<ul style="list-style-type: none"><li>• Development of and investment into overseas renewable energy<ul style="list-style-type: none"><li>- Sarulla Geothermal Power Plant in Indonesia (completed)</li></ul></li></ul>

\*This may change depending on future project orders.

\*Some carbon credits are utilized to reduce emissions according to the SBTi standard.



# Green Spread

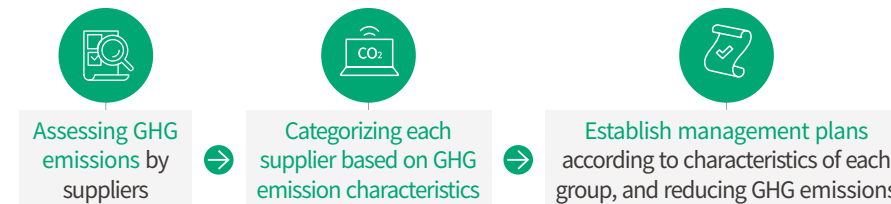


## Strengthening cooperation on carbon neutrality in value chain

**Hyundai E&C will strengthen its cooperation across the value chain and take the lead in the low-carbon construction market.**

Suppliers consume a substantial amount of energy in the phases of material manufacturing and construction, which is not only a key to their price competitiveness but also a critical issue directly related to procurement prices faced by Hyundai E&C. We have established a major sustainability strategy aimed at improving energy efficiency in our supply chain, and set up a target of decreasing GHG emissions from the supply chain by 2.1% by 2030 on a yearly basis, compared to the level in 2015. Since the development of the “Assessment Indicators of Suppliers’ Sustainable Management” in 2014, the first of its kind among domestic builders, Hyundai E&C has assessed and managed environmental, social and economic risks imposed on the supply chain. We will manage the environmental risk assessment in a way that evaluates GHG emissions and reductions of our suppliers, while also identifying and categorizing suppliers by their GHG emission characteristics, so that separate management plans can be established that are tailored to the characteristics of each group, which will in turn lead to effective GHG reductions. At the same time, Hyundai E&C will take the lead in achieving net zero across the value chain by jointly developing low-carbon materials with construction material developers.

### Management process for GHG emission reduction by suppliers

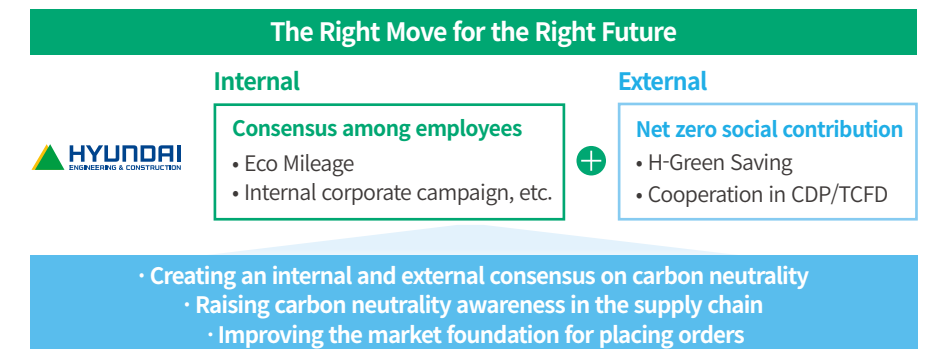


## Spread of carbon neutrality awareness among internal and external stakeholders

**Hyundai E&C will form a consensus on carbon neutrality both within and outside of the company by carrying out carbon neutrality-linked activities.**

Dealing with the global challenge of climate change requires serious efforts and changes by various stakeholders. In this regard, Hyundai E&C aims to form a consensus on net zero inside and outside the company through its internal green campaign and carbon neutrality-linked corporate social responsibility (CSR) activities. In an effort to raise carbon neutrality awareness among our employees, we held a contest on carbon reduction ideas and are planning to implement the Eco Mileage System that includes small practices on carbon neutrality among employees. On top of this, in order to be consistent with “The Right Move for the Right Future,” a new sustainability vision launched by Hyundai Motor Group in 2022, we will apply carbon neutrality-linked CSR activities as external GHG reduction projects. The resulting profits incurred by carbon credit sales will be spent in energy education for youths aspiring for a career in the environmental sector.

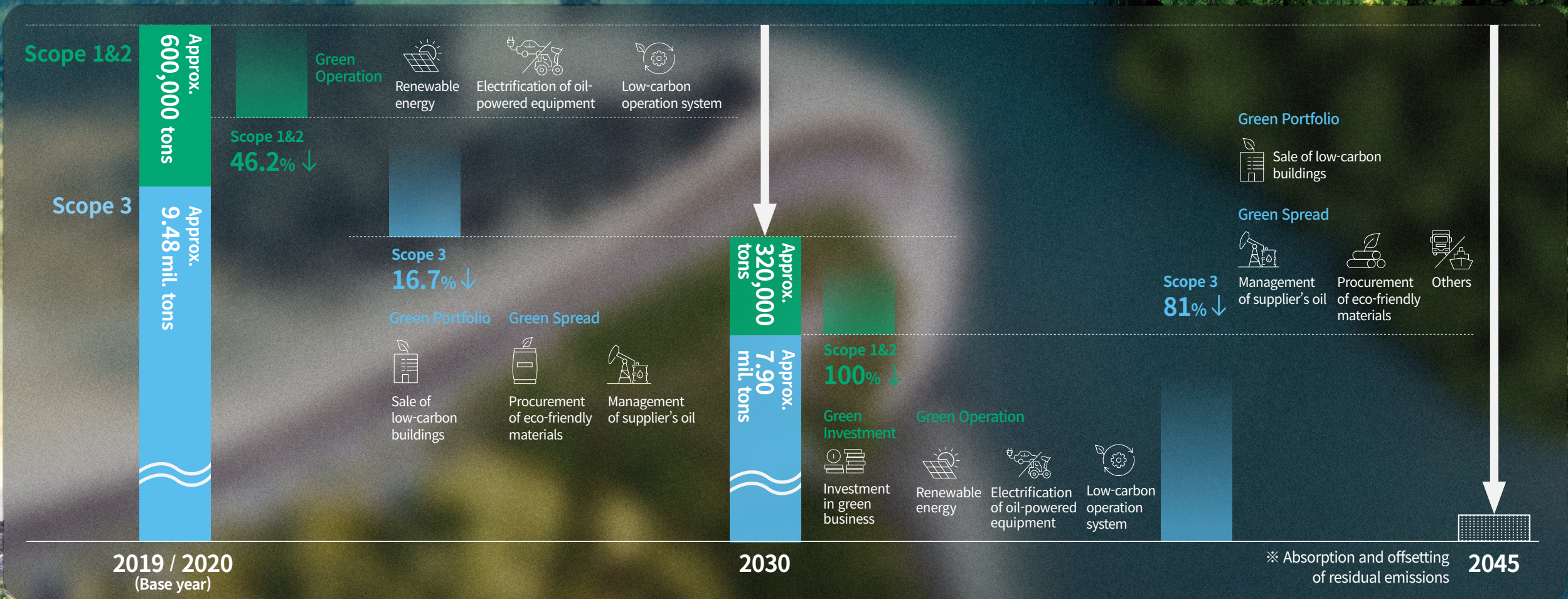
### Increase in carbon neutrality awareness within and outside of Hyundai E&C





# Net Zero Pathway

## Hyundai E&C Net Zero Pathway in Scope 1&2 and 3







# Epilogue

Asia Square Tower  
Country: Singapore  
Certification: BCA Green Mark Platinum | LEED Platinum

21	Net Zero Governance
22	HYUNDAI E&C Net Zero Roadmap
23	Appendix

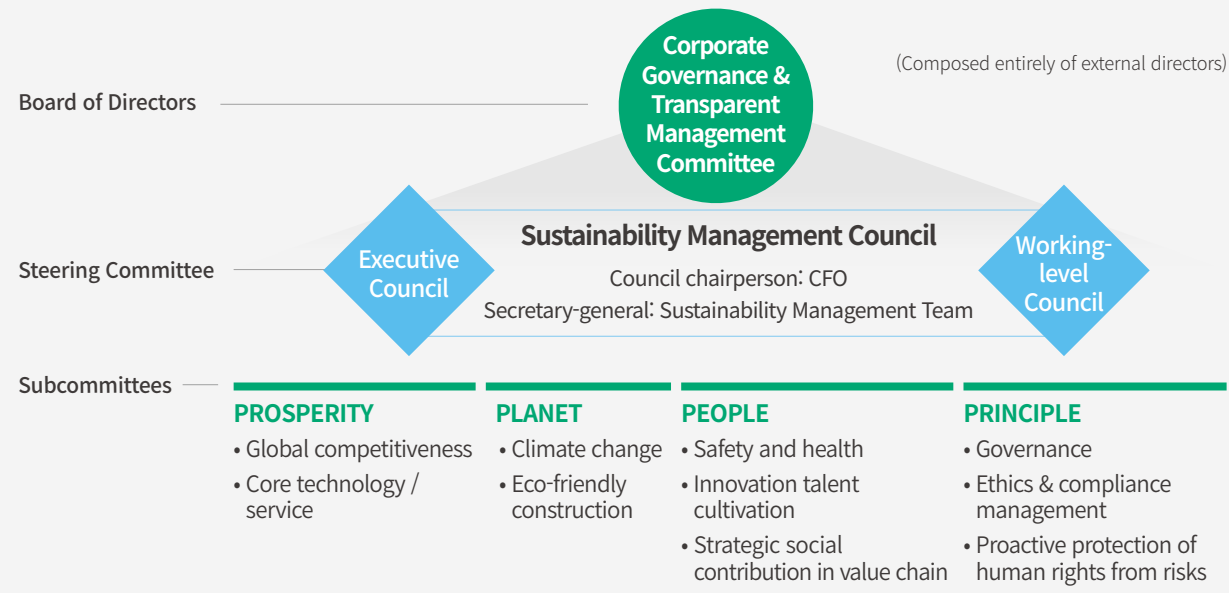


# Net Zero Governance

Hyundai E&C launched a CFO-led Sustainability Management Council in October 2020 by the Corporate Governance & Transparent Management Committee under the Board of Directors with the aim of enhancing sustainability as a global leading construction company. In May 2021, Hyundai E&C also established the 4P-based sustainability management system (prosperity, planet, people and principle), by the ESG standards of the World Economic Forum, as the first to do so among construction companies in Korea. The Sustainability Management Council is composed of organizations with relevant expertise and executive capacity for each implementation system and operates on a quarterly basis.

## Hyundai E&C's governance for sustainable management

Hyundai E&C operates the Sustainability Management Council on a quarterly basis to form a company-wide consensus on sustainable management and strengthen the company's executive capacity, which is reported to the Board of Directors via the Corporate Governance & Transparent Management Committee



Hyundai E&C has been monitoring climate-related issues through the Corporate Governance & Transparent Management Committee which is composed of the Board of Directors, and the Sustainability Management Council has reported the issues to the committee periodically. Also, Hyundai E&C takes a look at the implementation process to assure that carbon neutrality can be conducted continuously. The Sustainability Management Council is strengthening its ability to respond to climate change by identifying the weaknesses and improving it systematically, using the assessment indicators and standards of global climate change such as CDP, SASB, TCFD and etc.

## 2021-2022 sustainable management reports to the Board of Directors

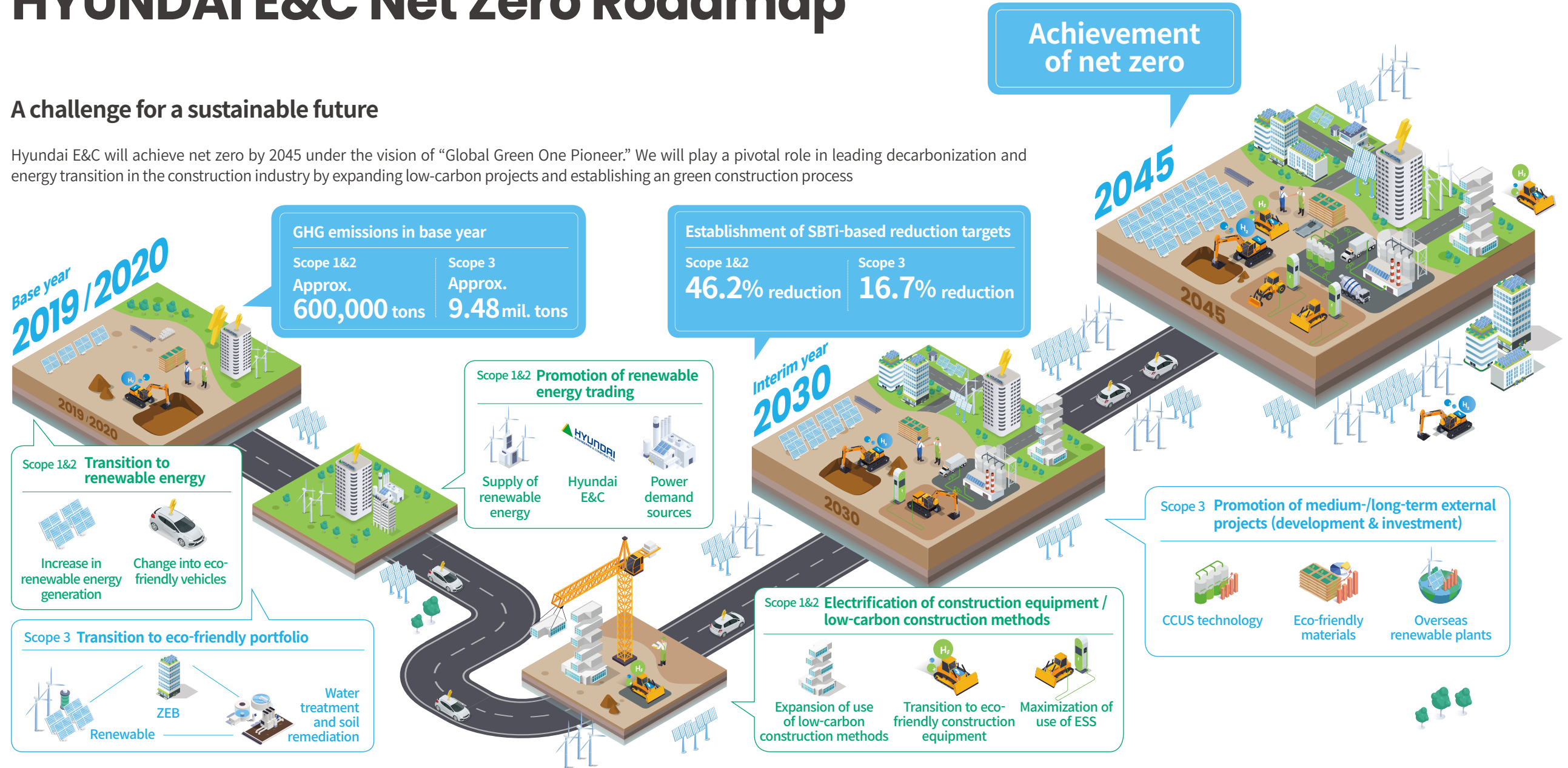
<b>Corporate Governance &amp; Transparent Management Committee</b> 	<ul style="list-style-type: none"> <li>• 2045 Net Zero Roadmap</li> <li>• Deliberation and resolution of declaration of coal exit</li> <li>• Plans for sustainable management (ESG) promotion</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of key ESG policies (environment and biodiversity)</li> <li>• Report of sustainable management promotion and future plans</li> <li>• Increase in green projects</li> </ul>
<b>Sustainability Management Council</b> 	<ul style="list-style-type: none"> <li>• Establishment of net zero implementation strategies and roadmap</li> <li>• Review of risks of clients in new markets</li> <li>• Establishment of medium-/long-term strategies and roadmap for renewable energy and eco-friendly projects</li> <li>• Establishment of medium-/long-term roadmap for eco-friendly R&amp;D</li> <li>• Improvement of suppliers' environmental assessment management system</li> <li>• Development of advanced environmental data management system</li> </ul>	<ul style="list-style-type: none"> <li>• Advancement of membership in ESG initiatives (UNGC, SBTi and TCFD)</li> <li>• Review of implementation of action plans for 2030 future strategies (wind power, hydrogen, etc.)</li> <li>• Establishment of medium-/long-term strategies and roadmap for sustainable products</li> <li>• Feasibility review on introduction of renewable energy to construction sites</li> </ul>



# HYUNDAI E&C Net Zero Roadmap

## A challenge for a sustainable future

Hyundai E&C will achieve net zero by 2045 under the vision of “Global Green One Pioneer.” We will play a pivotal role in leading decarbonization and energy transition in the construction industry by expanding low-carbon projects and establishing a green construction process





# Appendix

## Net Zero 2050 Climate Foundation Message



### A Big challenge to realize Global Good, supporting Hyundai E&C's carbon neutrality by 2045...

The response and implementation of climate change in countries around the world, including Korea, the United States, and EU, have been accelerating since the launch of the Paris Agreement in 2016, and according to the 'Special Report on Global Warming of 1.5°C' published by the 48th session of the Intergovernmental Panel on Climate Change (IPCC) in 2018, a global carbon neutrality should be realized in the middle of the 21st century or before to prevent the worst situation caused by climate change.

Korea announced a specific plan to reduce greenhouse gas emissions by 40% in 2030 compared to 2018 in order to achieve the carbon neutrality by 2050 through the low-carbon transition of its economic structure and fostering a green industrial ecosystem.

The carbon neutrality is also a new chronological flow, an opportunity and a bold challenge to move towards a sustainable future, following industrialization and computerization. This time, Hyundai E&C is leading these big challenges by declaring its carbon neutrality by 2045.

We, Net Zero 2050 Climate Foundation, think that the fact that Hyundai E&C recognized the importance of carbon neutrality and voluntarily announced the carbon neutrality for the first time among the listed companies of construction sector in Korea will be an important milestone in the spread of carbon neutrality

in the construction industry to respond to the climate crisis in the future. In this respect, we give endless support and applause to Hyundai E&C.

We hope that Hyundai E&C's this declaration is meant to be an 'opportunity' for the sustainable growth of national economy and construction industry in the future, not just another duty required by companies. We are also convinced that it will be chance for all the value chain in this sector to participate the carbon neutrality.

We, Net Zero 2050 Climate Foundation, will spare no effort in cooperation and support to back up Hyundai E&C's voluntary efforts to implement the carbon neutrality.

We believe that the small actions for carbon neutrality by each Hyundai E&C employee can be set as an example for the industry and, furthermore, become a global leading case of carbon neutrality. The small actions in our daily lives can save the Earth and change the future of ourselves, our neighbors, and our children.

'Global Good' is the vision of Net Zero 2050 Climate Foundation and sustainable future that we dream of carbon neutrality with Hyundai E&C.

Thank you so much.

Net Zero 2050 Climate Foundation.  
Chairman of the board, **Jang Daesik**

\* Net Zero 2050 Climate Foundation is a non-profit corporation under the jurisdiction of the Ministry of Foreign Affairs established to respond to the climate change crisis and achieve carbon neutrality by reducing carbon dioxide emissions by 2050.

## Hyundai E&C Carbon Neutral Task Force

Organization	Persons in charge		
Head of Carbon Neutral T.F.	CFO		
Sustainability Management Team (General Affairs)	Moon Je-Cheol	Kim Se-Won	Park Yeon-Ji Park Jeong-hoon
Business Planning Team	Seong Wan-Sang	Park Byoung-Gyu	Min Yoon-Gun
Environmental Management Team	Chu Young-Ki	Kim Je-Young	Hong Hyun-Jong
Project Management Team		You Yong-Bae	Hong Dae-Ho
Infrastructure Management & Administration Team	Kim Kee-Young	Hong Jae-Hyuk	Hyun Ji-Yul
Housing Works Management & Administration Team	Park Se-Jin	Choi Jae-Won	Park Sung-Won
Plant Management & Administration Team	Ryu Seong-An	Chong Mu-Sig	Cho Jun-Ki
Research Administration Team	-	Lee Se-Jin	Park Jun-Yong
Procurement Support Team	Seo Tae-Kyu	Kim In-Dong	Lee Young-Je
Business Support Team	Kim Ki-Hong	Yeo Chul-Kee	Lee Eun-Tak Kim Beom-Yoon
Development & Investment Business Management Team	-	Lee Woong-Ro	Park Jin-Seop
New & Renewable Energy Marketing Team	Lee Yoon-Seok	Lee Se-Ik	Hwang Jun-ho

\* Operation period of Carbon Neutral Task Force: Jan. 2022 - Oct. 2022  
For inquiries, please contact: Kim Se-Won csr31@hdec.co.kr /  
Park Yeon-Ji yeonji81@hdec.co.kr





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**GLOBAL GREEN ONE PIONEER:  
Net Zero by 2045**