SK ecoplant

Task Force on Climate-related Financial Disclosures

TCFD REPORT 2023

Reporting Standards

This is our first report providing an account of SK ecoplant's and its four key subsidiaries' and sub-subsidiaries' targets for greenhouse gas emissions (GHG) mitigation and response to climate change in accordance with the TCFD's reporting framework. Since the introduction of the TCFD framework in 2021, SK ecoplant has analyzed the quantitative scenarios, incorporated new disclosure standards, and broadened the reporting scope, thereby advancing our climate change response system.

Reporting Scope and Boundaries

SK ecoplant and its four key subsidiaries and sub-subsidiaries

※ Detailed reporting scope and boundaries are available in the section 'Methodology & Glossary'

Reporting Period

January 1, 2021 ~ September 30, 2023

Reporting Framework

TCFD Recommendations on Climate-Related Financial Disclosure

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OVERVIEW

The aurora, a breathtaking spectacle of vibrant colors produced by the interplay of solar energy and earth's magnetic field, is a dream sight for many. However, this mesmerizing display is elusive, only gracing us with its presence on a few clear nights each year. Regrettably, this spectacle may soon reside only in our memories. The escalating levels of carbon emissions are leading to a rise in temperatures in the polar regions, creating an unstable atmosphere. This translates to more overcast days and fewer opportunities to witness the aurora. SK ecoplant is making every effort to combat climate change so that we can continue to marvel at the glittering displays today and the days to come.

Company Overview

SK ecoplant

As a company committed to become a Climate Solution Leader, SK ecoplant's vision is to 'Cool the Earth'. Our business models across the environmental and energy sectors are aligned with climate action initiatives. We are committed to mitigating carbon emissions by generating renewable energy and green hydrogen. Furthermore, we are transforming waste into energy and resources, thereby minimizing waste production. In 2021, SK ecoplant further expanded our portfolio by acquiring waste incineration and landfill companies that could synergize with EMC. This acquisition has laid the groundwork for SK ecoplant to become the top environmental company in Korea. To sharpen our capabilities in the fuel cell business, we have invested in Bloom energy, a leading company specializing in solid oxide fuel cell and water electrolysis technology, and established a strategic partnership. In 2022, SK ecoplant acquired TES, a leading player in the E-Waste sector based in Singapore, which is also expanding its presence in the battery recycling industry. As part of our efforts to secure a market position in advance, we also made an equity investment in Ascend Elements, a U.S.-based company that possesses innovative battery recycling and precursor manufacturing technologies. Additionally, we expanded our value chain in the renewable energy sector by acquiring SK oceanplant, a company with a competitive edge in the global market for offshore wind substructure manufacturing.

SK ecoengineering

SK ecoengineering is a company renowned for its technical professionals and extensive experience in executing numerous global projects. Its business scope extends across various fields, including secondary batteries, hydrogen, eco-friendly environment, and power plants. The company's commitment to providing the best value has earned it the trust of its clients, leading to repeat orders. SK ecoengineering focuses on future-proof businesses such as secondary batteries, as well as green and energy infrastructure businesses like eco-friendly hydrogen, plastic, and recycling. This approach allows SK ecoengineering to generate not only economic value but also societal value.

SK oceanplant

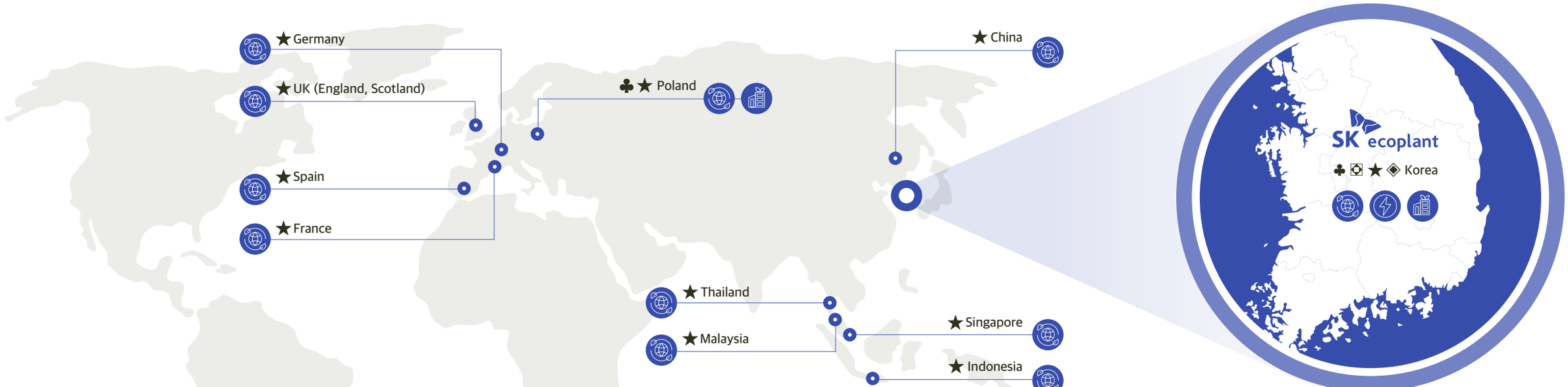
SK oceanplant plays a pivotal role in the value chain of offshore wind power for green hydrogen. Established as Samkang Special Industry in 1999, the company achieved a significant milestone in the following year by localizing the production of heavy wall thickness pipes, which were previously imported. The accumulated technological prowess in manufacturing heavy wall thickness pipes made SK oceanplant stand out in the production of offshore wind substructures, a process that requires advanced welding technology for thick iron plates. In 2020, SK oceanplant made history by becoming the first domestic company to export offshore wind substructures. Since then, it has a proven track record of exporting these substructures to global offshore wind companies, including Denmark's Ørsted and Belgium's Jan De Nul. The company is equipped with essential infrastructure such as a 929,917.355 square meter yard (production site) and a berthing pier, which are necessary for large-scale barges to anchor and unload for export. Currently, SK oceanplant is constructing the world's largest offshore wind substructure production plant, which will span an area of 1,573,553.72 square meters

TES

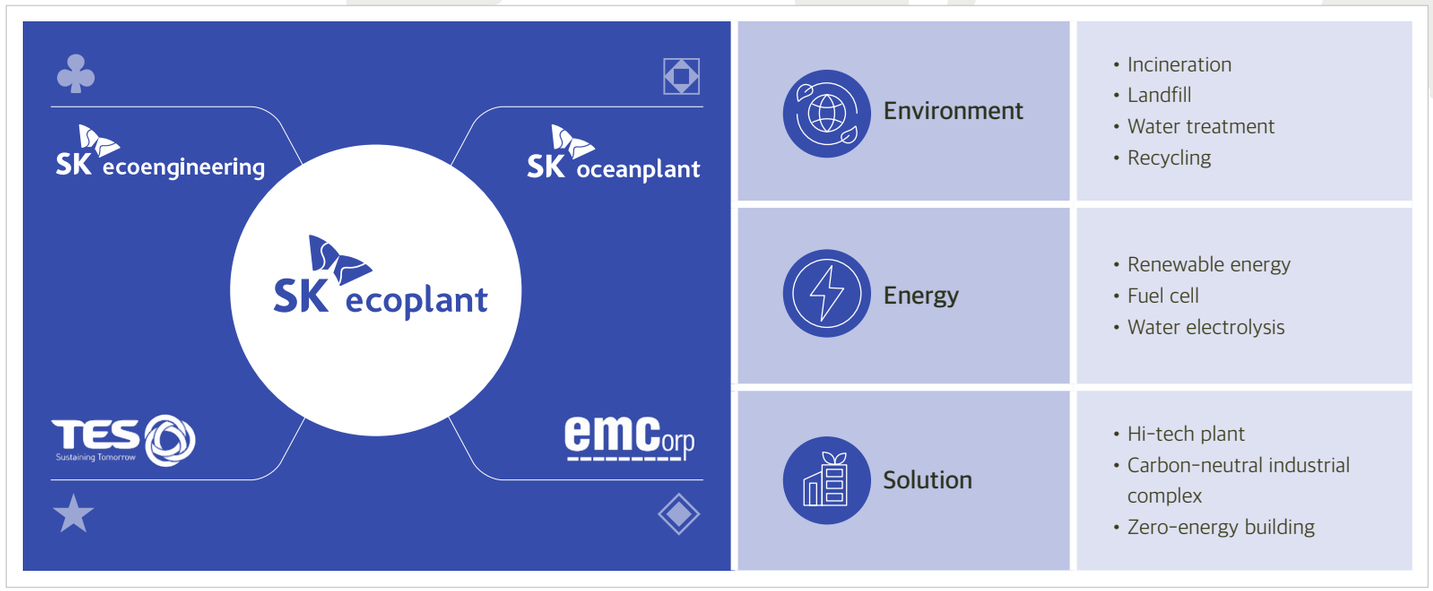
TES, based in Singapore, is a global leader in the E-Waste industry, operating in the fields of electrical and electronic waste recycling, IT asset disposition (ITAD) services, and waste battery recycling. With a vast network of 46 disposal facilities spread across 22 countries, including key markets such as the US, the UK, Germany, China, and Singapore, TES stands out as the company with the largest number of facilities in the industry.

EMC

Since its inception in 1997, EMC has evolved into the largest comprehensive environmental company in Korea. It operates around 1,290 sewage treatment plants, 10 incineration and landfill facilities, and facilities for the treatment of waste oil and wastewater. Since EMC became a subsidiary of SK ecoplant in 2020, it has enhanced its competitiveness by introducing innovative solutions such as AI-based and DT-based logistics systems, and advanced incinerator operation systems, distinguishing EMC from its competitors.



※ Location of 164 key business sites analyzed for physical risks in this report

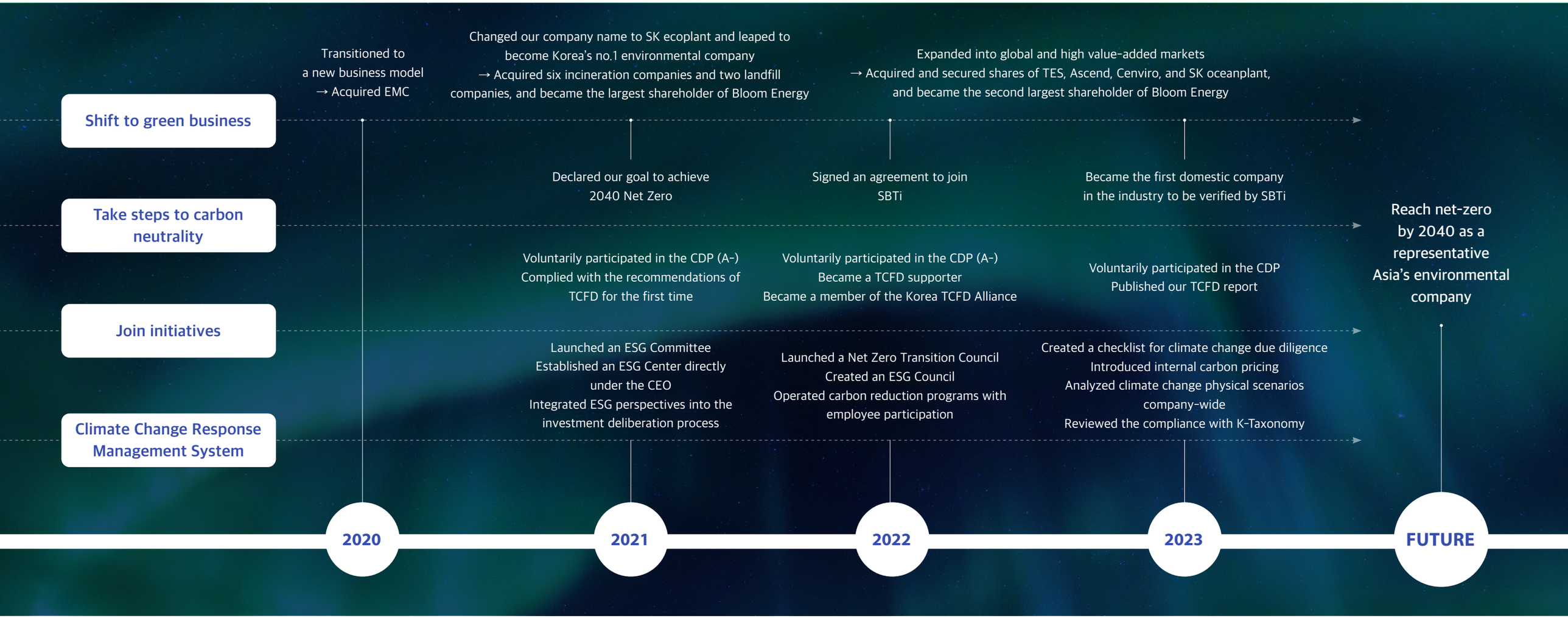


SK ecoplant is a global leading player, blazing a new trail in the environment and energy market. We are committed to addressing the environmental and energy challenges posed by climate change worldwide. In the environmental sector, we have built strong partnerships with global entities, including Korea's largest environmental businesses, and have made significant strides in the upstream recycling sector. In the energy sector, we have expanded our presence in the domestic fuel cell market. Furthermore, we have developed a comprehensive value chain for green hydrogen, which will give vitality to the global hydrogen economy. As for our solution business, we have ventured into the investment and development business, leading the charge in the creation of eco-friendly construction materials. Moreover, we aim to integrate our environment, energy, and solution businesses to discover new business models.

Our Journey for Climate Action

With the aim of addressing the global challenge of climate change, SK ecoplant transitioned from a traditional construction company to a business focused on environmental, energy, and solution-based services in 2021. As a leading ESG player in Korea, SK ecoplant has set an ambitious goal to achieve net-zero emissions by 2040. And we are proud to be the first company in our industry to be verified by the Science Based Targets initiative (SBTi). In this rapidly changing environment, SK ecoplant is committed to relentless evolution and active climate action, striving to become one of Asia's leading environmental companies.

Climate Change Response Management System



TCFD Highlights

Governance

- Established an ESG Council and ESG Center directly under the CEO
- Assigned climate action-related KPIs to all employees including the CEO
- Launched and operated a Net Zero Transition Council joined by business units and management support organizations
- Launched and operated an ESG Council joined by subsidiaries

Risk Management

- Built a system for climate change due diligence and review process of climate-related risks and opportunities to be carried out by the Investment Review Committee
- Incorporated internal carbon prices
- Tightened the on-site disaster management system of our solution business
- Evaluated supply chain response capacity on climate change and provided support for improvement
- Set up an internal review system to prevent greenwashing

Strategy

- Turned the risks posed by climate change into opportunity by transitioning to our new business model in 2021
- Carried out materiality assessments on climate-related transition and physical risks of SK ecoplant, including our subsidiaries
- Established strategies to accomplish net-zero, including our subsidiaries
- Analyzed the resilience against rising carbon credit prices

Metrics & Targets

- Calculated and verified our scope 1, 2, and 3 emissions
- Became the first company within the same industry in Korea to be verified by SBTi
  - Scope 1, 2, 3 reduction targets and performance
- Examined compliance with the K-Taxonomy and unveiled its results
- Disclosed our investments in eco-friendly businesses and R&D activities

Methodology & Glossary

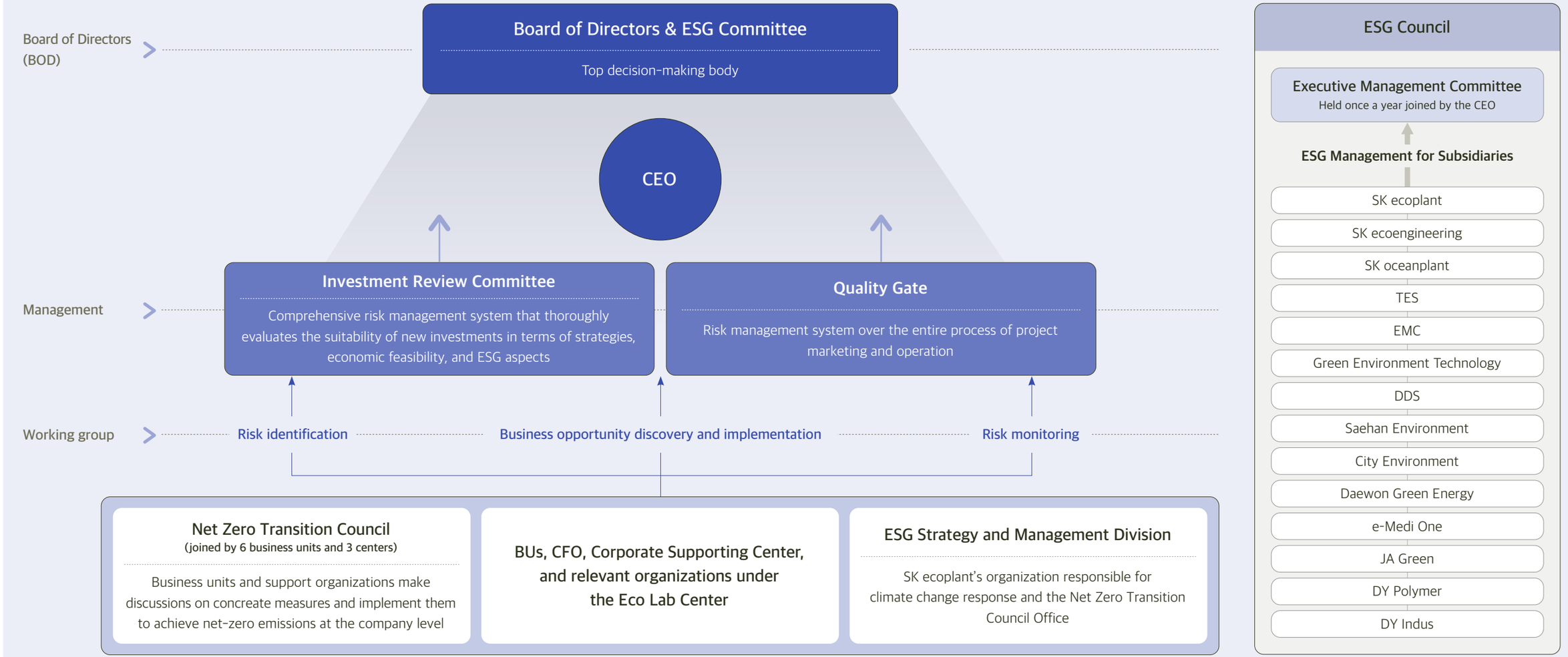
- Provided reporting scope and terminology
- Offered scenario analysis methodology
- Disclosed methodology used for the calculation of greenhouse gas (GHG) emissions
- Disclosed assurance statement

GOVERNANCE

We are committed to achieving our goal, '2040 Net Zero,' as well as to responding to the fast evolving internal and external environments induced by climate change. SK ecoplant has a governance structure in place to address climate change, which includes the Board of Directors, management and the ESG Council which includes working-level employees and our subsidiaries. We have defined the roles and responsibilities of each stakeholder and assigned ESG-related KPIs to them in order to drive effective discussions on how to address climate-related issues. Moreover, we have integrated climate-related risks and opportunities into our business strategies through close communication among all the stakeholders, thereby ensuring company-wide climate action.

Governance

SK ecoplant has strengthened its internal management system to manage climate change-related risks, establish transitional business strategies, and manage its progress.



*September 30, 2023

Board of Directors (BOD)

BOD·ESG Committee

Highest decision-making body

- Making decisions on the climate change transition and response strategies
- Monitoring and evaluating the progress of GHG reduction goals through regular reporting
- Considering ESG risks when making final decisions on investment agendas reviewed through the Investment Review Committee

Management

CEO

- Overseeing the climate change transition and response projects
- Ensuring the reduction of GHG emissions to achieve carbon neutrality by 2040
- Supervising the climate change risks of investment and operation businesses

Investment Review Committee

A risk management system that comprehensively reviews the strategic suitability, economic feasibility, and ESG factors when making new investments

- Incorporating ESG risks, including climate change risks and opportunities, into the investment review process
- Detecting issues by climate change risk type and setting up a response system when investing in new businesses through climate change due diligence

Quality Gate

Risk management system across all stages of project marketing and operation

- Managing and controlling the cost plan in light of climate change risks at the project initiation stage
- Identifying and managing potential risks and disseminating the optimal recovery plan for each risk within the company

Working-level

Net Zero Transition Council

Business organizations and support organizations collaborate and execute detailed plans to reach company-wide carbon neutrality

SK ecoplant launched the Net Zero Transition Council under the lead of the ESG Strategy and Management Division to respond to climate change at a company-wide level and to set up strategies for reducing GHG emissions encompassing all business sectors. The Net Zero Transition Council, which consists of 6 Business Units and 3 Centers for promoting company-wide carbon neutrality, discusses action plans for reducing GHG emissions by operating the council once a month. Matters discussed in detail through the council include developing environmental efficiency indicators of each business sector, analyzing the trends of energy consumption, GHG emissions and waste generation compared to the previous year, introducing CCUS (Carbon Capture, Utilization and Storage technology), responding to the CDP, and expanding the green procurement plan. Regarding the major agendas, we report to the C-Level to prevent operation risks of business sectors.

Participating organization	Major role
Business units	• Development of Net Zero business model and low carbonization of existing businesses • Monthly GHG data management of project sites and emission source analysis
Management and procurement	• Inclusion of Net Zero strategy in the financial plan • Promotion of low-carbon product purchase (e.g. low-carbon ready-mixed concrete)
Research lab	• Review of and investment in Net Zero realizing technologies

ESG Strategy and Management Division

SK ecoplant's dedicated organization for climate action
Net Zero Transition Council Office

- Formulating a carbon neutral strategy and overseeing the company-wide carbon neutrality implementation
- Reviewing climate change risks and monitoring new regulations

Subsidiaries

ESG Council

Working organization to promote ESG management

- Enhancing ESG management activities of SK ecoplant and 14 subsidiaries
- Issuing quarterly reports with the latest ESG regulatory trends and ESG management activities of ESG Council member companies

Executive Management Committee

The highest decision-making body of the ESG Council for internalizing the ESG management system of SK ecoplant and its subsidiaries

- Consisting of the CEO of SK ecoplant, the head of the ESG Center, and the CEO of each subsidiary
- Deliberating on key ESG agenda items through yearly regular meetings

Our BOD's Climate Action

Roles of BOD and ESG Committee

The Board of Directors (BOD) of SK ecoplant is the highest decision-making body that supervises the company's climate change response strategy and implementation. We endeavor to implement 'board-centered responsible management' by composing independent directors with a majority , strengthening the substantive authority to scrutinize the activities of the CEO and management. Furthermore, we tackle specialized areas such as climate change by forming a balanced BOD, complying with the principles of expertise and diversity. In 2021, we established an ESG Committee under the BOD to reinforce the company-wide governance capacity to respond to climate change. As prescribed in Article 3 of the 'ESG Committee Regulations,' the ESG Committee devises the company's mid- to long-term ESG strategy and annual management plan, including climate change, and inspects performance. The ESG Committee should consist of at least two independent directors, and preferably, the majority of members ought to be independent directors. It currently includes three independent directors, one other non-executive director, and one executive director.

● ESG Committee Composition

Composition	Member	Gender	Expertise	Career background	Major roles
3 independent directors	Yoon-mo Kim (Chair)	Male	Leadership, finance/accounting/risk, M&A/investment, global capabilities	• Current) Vice president, Nautic Investment Ltd. • Adviser, AJ Group • CEO & President, Solomon Investment Securities • General Vice Chairman, KTB Private Equity	The ESG Committee evaluates and deliberates on the company's mid- to long-term strategy, annual management plan, critical individual investment agenda item, governance structure improvement, social value creation and promotion, climate change response, environment, and safety and health policies and plans from an ESG perspective for the enhancement of ESG.
	Jong-ho Kim	Male	Leadership, finance/accounting/risk, M&A/investment, ESG	• Current) Chairman, ESG Committee, LS Cable & System • CEO & Adviser, Deloitte Korea	
	Mira Lee	Female	Leadership, finance/accounting/risk, business strategy, ESG, global capabilities	• Current) Independent director, Chairman of ESG Committee, Hankook Tire & Technology • Current) Visiting professor, Yonsei Graduate School of International Studies • CHRO (Chief Human Resources Officer), GE Korea • COO (Chief Operating Officer) & managing director, Macquarie Group Korea • Person in charge, Global Strategy Planning, Germany Head Office, Deutsch Bank	
1 non-executive director	Sung-hyung Lee	Male	Leadership, M&A/investment, business strategy, ESG	• Current) CFO, SK Holdings • Director, Financial Division, SK Holdings • Head, Financial Management Office, SK Telecom	
1 executive director	Sung-ok Cho	Male	Leadership, finance/accounting/risk, M&A/investment, business strategy	• Current) CFO, SK ecoplant • Head of the Corp. Strategy Center, SK ecoplant • General Manager, Digital Investment Center, SK Holdings • PM Strategy Office, SK Holdings • Management Strategy Team, Management Planning Team, SK Telecom • Management Research Office, SK Research Institute for SUPEX Management	

BOD Reporting System

The ESG Committee meetings are convened at least four times a year, evaluating company-wide non-financial risks and opportunities, including its subsidiaries. Significant issues are reported to the CEO and the BOD in order. The committee mainly addresses ESG issues such as climate change, ESG strategies, climate change responses, and ESG due diligence and audits. SK ecoplant made climate change a key component of its business strategy when it transformed its business model into an environment and energy company in May 2021. Accordingly, the BOD and the committee consider climate change issues in the investment and business planning process and decision-making. For major investments above a certain threshold, the BOD receives written opinions based on the ESG organization's assessment of climate change risks and opportunities.

● Climate Change Agenda Items in the BOD and ESG Committee

Year	Passed items	Reported items	Review
2023		• Main contents of ESG disclosure in 2023* (Net Zero implementation status, materiality assessment results) • Report on the results of Biz. Partner ESG Value-up** • Canada's green hydrogen and ammonia business development and investment • 2023 quality environment business plan • Report on 2023 management plan and company-wide KPI establishment	• Board Skill Matrix introduction plan
2022	• Equity investment in domestic offshore wind power projects • ESG management system • Agreement for ESG management of subsidiaries of SK ecoplant • Investment in Project Sun	• Review of participation in domestic offshore wind power projects • Growth strategy for global representative environmental company • Apartment House Green Rebuilding • Detailed investment plan for environmental business • Eco-friendly energy business strategy • Report on an annual quality environment project plan • Project Sun investment • Capital increase of Dongnam Offshore Windfarm Co., Ltd.	• Key contents of 2022 ESG disclosure (materiality assessment results, carbon neutrality, ESG management implementation in subsidiaries) • ESG management system • Agreement for ESG management of subsidiaries
2021	• Investment on offshore wind power • Investment in environmental business fund	• Report on E-waste recycling business promotion strategy • Report on ESG improvement and Net Zero • Direction of entry into offshore wind power market • Report on SK Financial Story	

* Agenda item reported in November 2023
** Agenda item reported in October 2023

BOD Capacity Building Activity

We raise the climate change response capabilities of the BOD from the board formation stage by considering each member's expertise. At the board operation stage, the board members' expertise is sharpened by providing reports on current key issues and training sessions on a regular basis.

Considering Climate Change Expertise in Independent Director Appointment Process

To elevate the competence of the BOD, we select directors who possess expertise and hands-on experience in various domains such as business strategy, ESG, and global capabilities. In particular, as we broaden our business scope and portfolio, we set up internal criteria for skills in each specialized field to choose professionals who can make sound decisions based on a deep comprehension. Since the climate change issue has been integrated into our key business strategy, we are also taking into account skills pertaining to climate change adaptation.

Regular Training for Independent Directors

SK ecoplant provides regular education to enhance the professional competence of its independent directors. In 2022, we visited the newly added environmental and energy subsidiary during the business portfolio transition process to review the business status in detail and discuss the new growth acceleration system. Furthermore, all members of the Audit Committee attended the Audit Committee forums and the training programs offered by external accounting firms at least once a year, and completed ESG management courses to reinforce their auditing proficiency.

● Education for Independent Directors

Date	Education provider	Main education content
Apr. 20, 2022	Bloom SK Fuelcell	Enhancing understanding of fuel cell and SOEC technologies
	Gyeongbuk Environment Energy	Enhancing understanding of incineration business among environmental subsidiaries
Jul. 20, 2022	Eco Energy BU	Seminar on domestic and overseas energy and offshore wind power market outlook
Sep. 27, 2022	SK oceanplant	Inspection on offshore wind power substructure production technology and subsidiary's ESG management environment
Nov. 09, 2022	Eco Lab Center	Introduction of WAYBLE, a digital-based waste logistics and management service
Feb. 17, 2023	Eco Lab Center	Introduction of current status of WAYBLE service business & incinerator automation system applied with AI·DT

Regular Reporting by Departments Relevant to Climate Action

Issues with regard to environmental management, such as energy and GHG consumption, and climate change outcomes are presented to the BOD and the ESG Committee at least once a year.

The Management's Climate Change Response

Performance-based Compensation for the Management

We have established a corporate governance that conforms to global standards by incorporating ESG performance into the compensation system for executive directors. Currently, the KPI of our registered directors aligns with the annual GHG emissions reduction target to attain carbon neutrality by 2040, and the BOD and ESG Committee determine the provision of incentives. Non-financial performance indicators such as leadership to generate business outcomes, swift portfolio transition with a focus on the environment and new and renewable energy, and effective execution are linked to incentives. Aiming to reinforce the CEO's accountability for long-term financial and non-financial management results, we granted stock-based compensation such as Restricted Stock Units (RSU) and stock options. As of 2022, the ratio of non-financial performance reflected in executive directors' KPI is 10%. We plan to enhance our leadership in advancing ESG management by persistently including non-financial performance in the long-term KPIs of the board directors and the management, institutionalizing ESG management in all corners of the company. For this purpose, in 2023, climate change response measures were also added to the KPIs of C-level and key executives besides the CEO.

● **List of Performance Indicators Regarding Climate Action in 2023**

Scope 1, 2	• Achieving GHG emissions target of 2023 • Implementing K-EV100
Scope 3	• Executing low-carbon procurement • Establishing, implementing, and advancing carbon reduction roadmap • Securing carbon reduction solutions for subsidiaries • Establishing and implementing renewable energy conversion plan for subsidiaries • Establishing carbon regulation response strategies for subsidiaries • Supporting GHG reduction technologies for subsidiaries • Advancing carbon management IT system
Carbon management system advancement	• Reviewing climate risk impact, introducing internal carbon price • Preparing climate risk review process when reviewing investments • Applying green classification system, etc.

Subsidiaries' Climate Action

ESG Council

With the diversification of ESG regulations in and outside Korea and the increasing stringency of ESG management standards for subsidiaries required by major countries, such as the US and EU, we founded the ESG Council in 2022 to enhance the ESG management of our subsidiaries. As of September 2023, a total of 13 companies, including SK ecoplant, have participated in the ESG Council and have undertaken various initiatives to institutionalize ESG in their organizations. The ESG Council is categorized into ① major management subsidiaries and ② small-sized environmental subsidiaries based on company size and sales proportion, and it offers consulting on ESG levels and improvement suggestions.

In 2022, SK ecoplant convened a council meeting with the CEOs of each subsidiary once, and the CEOs of each company entered into an agreement for ESG management, manifesting their commitment to advance ESG management. The ESG management agreement adheres to SK ecoplant's ESG business principles and encompasses a low-carbon future-oriented principle. Moreover, through the working group of SK ecoplant and its subsidiaries, an implementation roadmap to improve ESG levels of each company has been derived based on ESG level assessments of each subsidiary. With an aim to attain the objective of enhancing the CDP evaluation of TES, which operates the E-Waste business, we offered consulting on establishing a climate change response system, evaluating risks and opportunities, and formulating strategies. We are improving the ESG management system together with our subsidiaries so that not only TES but also our subsidiaries can respond to the long-term expectations of customers related to climate change, system development, compulsory information disclosure, and setting and pursuing GHG reduction targets.

● **Classification of ESG Council Subsidiaries**

	Criteria	Management measures
Major subsidiaries	More than 500 employees, annual revenue of over KRW 80 billion	• Consulting for improving the ESG management level focusing on response to domestic and overseas relevant requirements • Risk management based on quarterly ESG data
Small environmental subsidiarie	Other subsidiaries that are not included in 'major subsidiaries'	• Risk management based on quarterly ESG data

GHG Reduction Goal

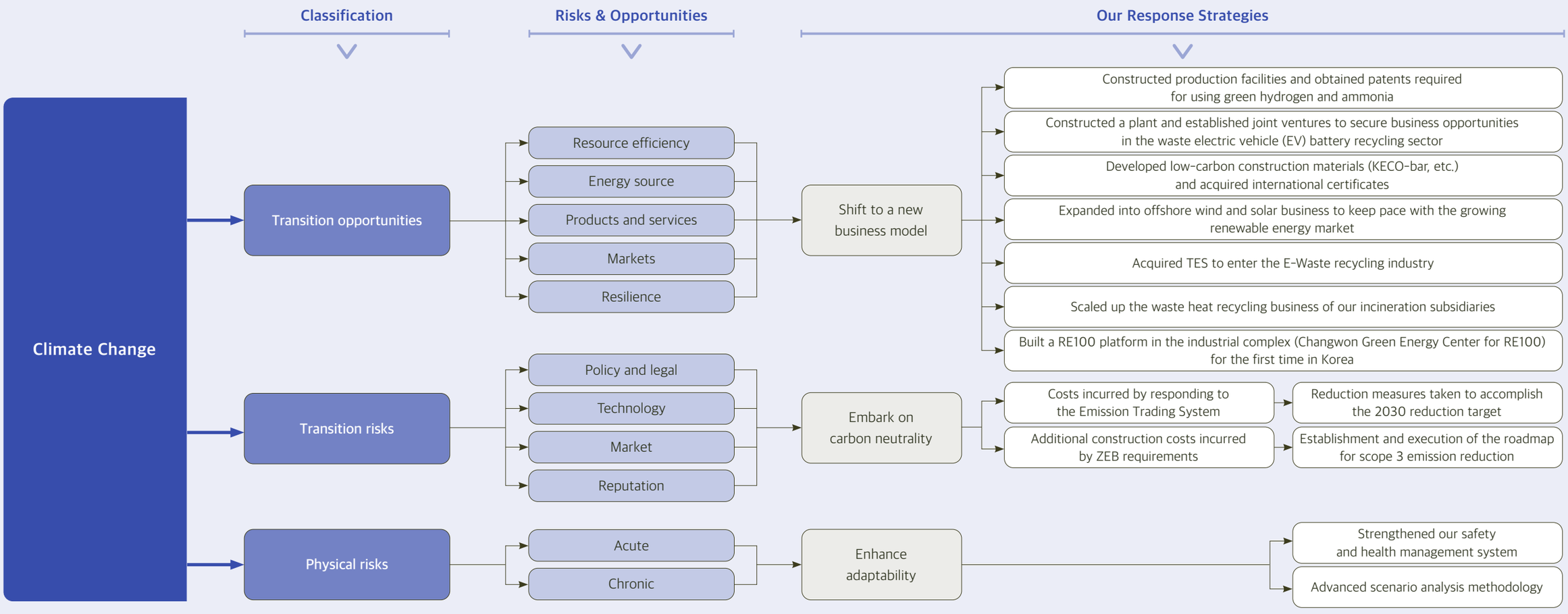
We have set a Scope 3 emission reduction target that encompasses not only Scope 1 and 2 GHG emissions, but also GHG emissions from major subsidiaries. Our Scope 1, 2, and 3 reduction targets have been validated by SBTi and we strive to identify the main methods to lower the subsidiary's emissions. We provide consulting to our subsidiaries so that, through active implementation, we can attain carbon neutrality by 2040.

STRATEGY

As a Climate Solution Leader, SK ecoplant has identified direct and indirect risks and opportunities brought by our businesses and subsidiaries' business nature, external regulations, and changing market environment in a detailed manner with the aim to minimize the adverse impact of climate change and turn the climate risk into an opportunity for further growth. We have analyzed the outcome of the materiality assessments of risks and opportunities, and our responses to the material issues.

Strategy

Based on the results of climate-related risk and opportunity analysis, 1) we have transitioned to a new business model aligned with our vision, 'Cool the Earth,' to Cool the2) established a roadmap for net-zero and implemented it to mitigate climate change, and 3) adapted ourselves to the era of climate change built on the outcome of the scenarios. From a business perspective, we are creating synergies by connecting energy supply infrastructure based on clean energy sources such as solar, wind, hydrogen, fuel cells, and waste treatment and recycling businesses based on innovative technologies such as AI and DT (Digital Transformation) on a single platform, taking advantage of our accumulated EPC (Engineering · Procurement · Construction) capabilities so far.



Analysis of Climate-Related Risks and Opportunities

Analysis Process

1. Risk and Opportunity Identification

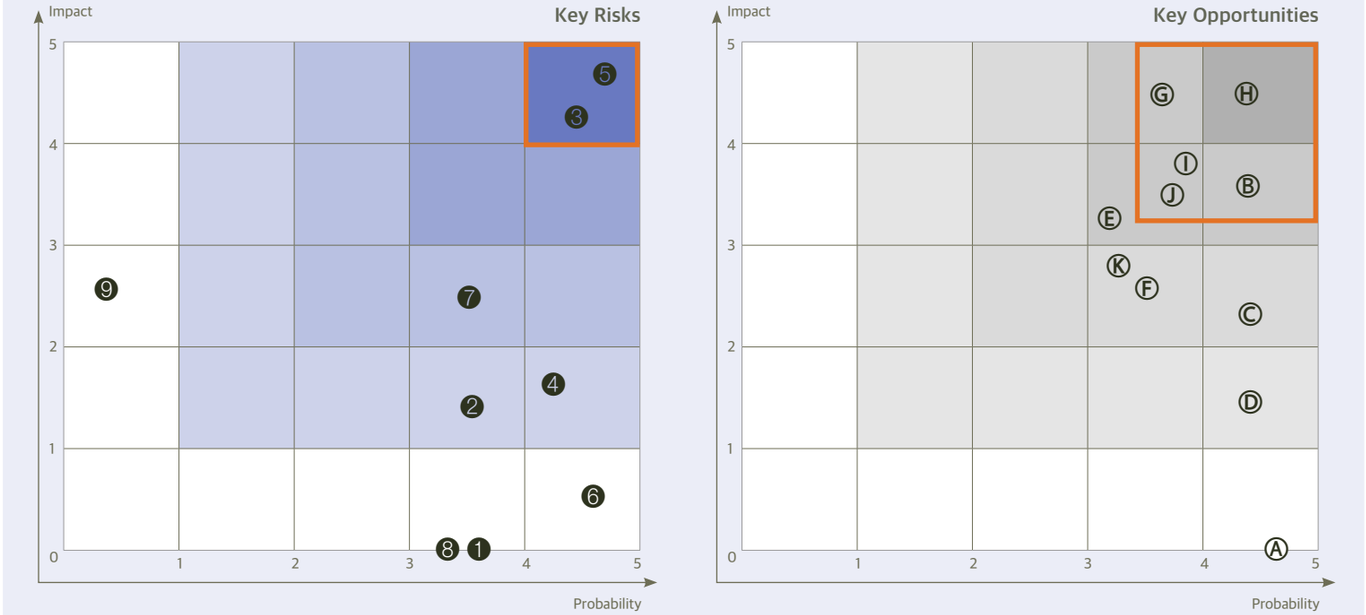
Our ESG Strategy and Management Division, which is dedicated to climate change response, has created a list of short-, mid-, and long-term risks and opportunities. This list takes into account relevant global carbon policies and regulations, stakeholders' requirements, R&C, and business models within the TCFD Framework.

2. Scenario Analysis

The Net Zero Transition Council brought together business units and management support organizations to analyze the probability of risks and opportunities related to climate change, their timing, their cumulative impact by 2030, and response strategies. To calculate the impact of climate change transition risks and opportunities, we adopted a scenario that seeks to keep the global average temperature rise to 1.5 degrees to examine the possibility of market expansion over the long-term. As for the short- to mid-term assumptions, we took a closer look at domestic and overseas regulations, as well as Korea's NDC (Nationally Determined Contribution), to quantify the accumulated impact by 2030. When it comes to physical risks, we leveraged S&P Global Climanomics® program to estimate the financial impact by 2100 based on the SSP2-4.5 and SSP5-8.5 scenarios.

3. Materiality Assessment

SK ecoplant has selected material risks and opportunities based on their probability and accumulated impact. The probability can translate to the likelihood of their occurrence at SK ecoplant and its subsidiaries and sub-subsidiaries. The impact means the cumulative financial impact by 2030 of each risk and opportunity. For the calculation, construction costs and sales were used as indicators. In terms of acute and chronic physical risks, they are excluded from the comparison analysis with other risk factors since they require analysis from a long-term perspective, but we regard them as critical risks as well.



● Materiality Assessment Criteria

Probability			Impact
Score	Level	Range	Degree
5	Very likely	90~100%	Absolute
4	Likely	66~100%	High
3	About as likely as not	33~66%	Medium
2	Unlikely	0~33%	Low
1	Very unlikely	0~10%	Minimal
0	Exceptionally unlikely	0~1%	None

Estimated Time of Occurrence		
Level	Range	Period
Short-term	0~3 years	2023~2026
Mid-term	3~10 years	2026~2032
Long-term	10~20 years	2032~2042

Climate Change-Related Risks

Material Factor

Category	Keyword		Risks	Time of Occurrence		
				Short-term	Mid-term	Long-term
Transition Risks	Policy and legal	❶	Carbon taxes imposed by the implementation of the EU CBAM (Carbon Border Adjustment Mechanism)		●	●
		❷	Need to sharpen capabilities for sustainable management due to the execution of due diligence in supply chains in the EU		●	●
		❸	Increasing operational costs incurred by the tightened regulations on the Emission Trading System in Korea and rising carbon credit prices	●	●	●
		❹	Need to strengthen climate change response capabilities to meet the obligation of climate data disclosure (ISSB S2, SEC, etc.)	●	●	
		❺	Need to meet the requirements of energy self-sufficiency when receiving approval for design in compliance with the mandatory zero energy building certification system	●	●	●
		❻	Need to convert corporate vehicles to 100% eco-friendly automobiles by 2030 in compliance with the K-EV100 regulations	●	●	
	Market	❼	Growing demand from clients for net-zero and transition to renewable energy sources	●	●	●
	Reputation	❽	Growing demand from stakeholders for ESG-related data disclosure and assessment	●	●	●
		❾	Rising No. of litigations filed by environmental & civic groups, local communities, or stakeholders	●	●	●
Physical Risks	Acute	❿	Business disruption and decreasing productivity due to the occurrence of typhoons, floods, or wildfires			●
	Chronic	⓫	Business disruption and decreasing productivity caused by long-term changes such as abnormal temperatures or rising sea levels			●

Climate Change-Related Opportunities

Material Factor

Category	Keyword		Risks	Area for Opportunity Utilization	Time of Occurrence		
					Short-term	Mid-term	Long-term
Opportunities	Products and services	Ⓐ	Need to mitigate carbon emissions from industrial complexes to achieve Korea's Nationally Determined Contributions (NDC)	Solution	●	●	●
		Ⓑ	Growth of the low-carbon construction material market driven by the increasing demand for green buildings	Solution	●	●	
		Ⓒ	Rising demand to manage hazardous substances emitted from incinerators and GHG emissions	Environment	●	●	
	Resource efficiency	Ⓓ	Need to boost waste recycling and advance waste management system to accomplish Korea's NDC	Environment	●	●	
	Energy sources	Ⓔ	Increasing need for infrastructure for power generation using renewable energy sources to achieve RE100 targets	Energy	●	●	
	Market	Ⓕ	Increasing demand for carbon credits to reach net-zero emissions	Energy	●	●	●
		Ⓖ	Rising demand for waste battery recycling	Environment	●	●	●
		Ⓗ	Growing demand for green hydrogen and ammonia nationwide	Energy	●	●	
		Ⓘ	Globally expanding offshore wind market	Energy	●	●	●
		Ⓙ	Growing demand for Solid Oxide Fuel Cells (SOFC) as a means to achieve carbon neutrality	Energy	●	●	
		Ⓚ	Increasing demand for Carbon Capture, Utilization, and Storage (CCUS) as a strategy to limit global warming to 1.5 degrees	Environment	●	●	

Our Analysis of Key Climate-Related Risks and Opportunities, and Responses

Risk ❸ Increasing operational costs incurred by tightened regulations on the Emission Trading System in Korea and rising carbon credit prices

Background

As of 2023, SK ecoplant is not required to adhere to the greenhouse gas (GHG) regulations in Korea. However, some of its subsidiaries fall under the Korean Emissions Trading System (ETS). The Act on the Allocation and Trading of Greenhouse Gas Emission Permits mandates that companies whose annual emissions surpass their emission allowance must participate in the ETS. Companies participating in the system receive an annual emission allowance at no cost. If their emissions exceed this allowance, they must purchase additional credits from other companies. The ETS has been implemented as a strategy to achieve the Nationally Determined Contributions (NDC), and we are currently in the third phase (2021–2025). With Korea's 2030 NDC being upgraded and the global community accelerating efforts towards carbon neutrality, the allocation of free allowances is expected to decrease. This is likely to result in increased costs for purchasing carbon credits.

Time of Occurrence	Short-term, mid-term, and long-term
Probability	Very likely
Target	SK ecoplant and its subsidiaries

Impact

During the fourth phase (2026–2030) of the Emissions Trading System (ETS), it is anticipated that actual emissions will exceed the emission allowances, which is due to the limited capabilities for reduction, despite the increased reduction targets. As a result, there will be a growing need to purchase carbon credits. Factors such as the upgraded Nationally Determined Contributions (NDC) are expected to lead to a gradual increase in the prices of carbon credits. Without additional efforts to reduce emissions, the operational costs associated with purchasing carbon credits are likely to continually increase.

Our Responses

① Mitigating direct GHG emissions is fundamental in complying with the Emissions Trading System (ETS). SK ecoplant, along with its subsidiaries, has set a goal to reach net-zero emissions by 2040. In 2023, our reduction target, 2030 Near Term, was validated by the Science Based Targets initiative (SBTi). We have been conducting various activities in line with these targets to meet our annual emission reduction goals.

② We have developed a GHG inventory for the subsidiaries we have acquired since 2021. In 2022, each of these subsidiaries formulated their own strategies to reduce GHG emissions and comply with carbon emission regulations. Additionally, AI & DT technologies have been integrated into our operation of incinerators, enabling them to directly measure CO_2 emissions.

Risk ❺ Need to meet the requirements of energy self-sufficiency when receiving approval for design in compliance with the mandatory zero energy building certification system

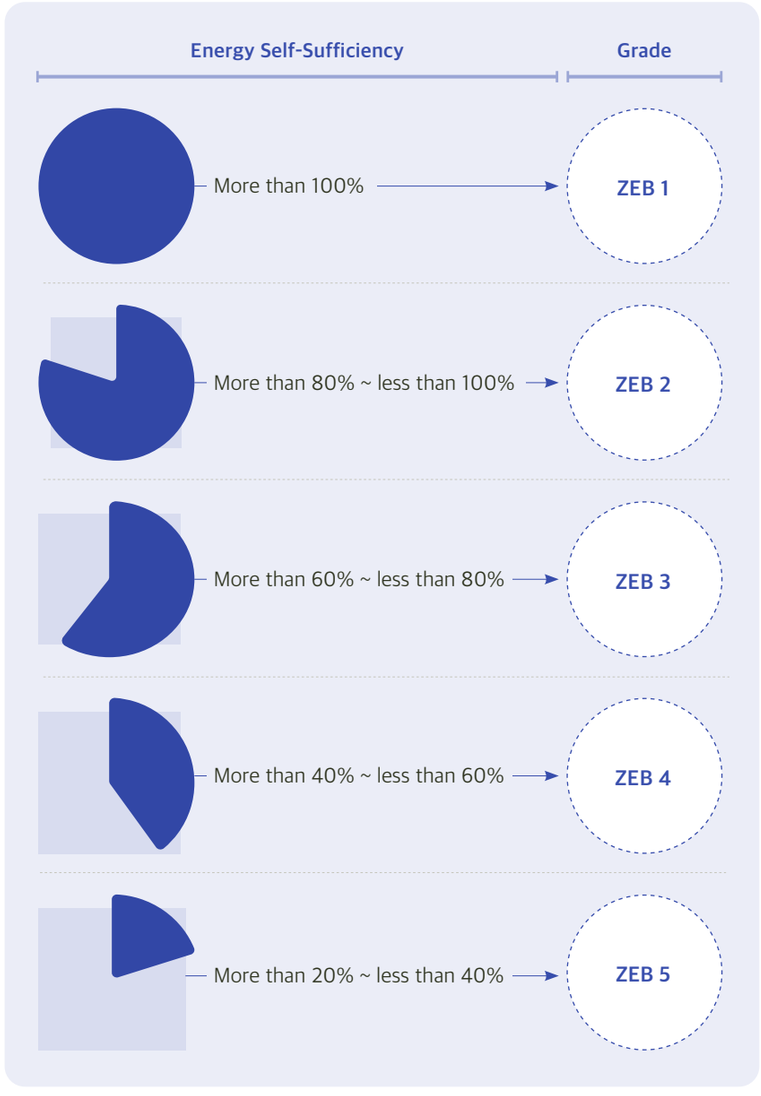
Background

Our core products in the solutions business, such as SK VIEW, DEFINE, and V1, primarily target the Korean market. Therefore, when promoting a project, we must consider the mandatory implementation of the Zero Energy Building (ZEB) certification system. As we transition towards a carbon-neutral society, failing to adequately respond to building regulations could compromise our market competitiveness. The Zero Energy Building Certification System was introduced in 2017 with the goal of enhancing energy efficiency in buildings. Initially, this certification system was set to include the private sector by 2025. However, in an effort to achieve carbon neutrality by 2050 in Korea, this timeline has been moved up to 2024. From 2024, private residential buildings with more than 30 units are required to achieve 20% energy self-sufficiency. This requirement will extend to public buildings larger than 500 square meters and private buildings larger than 1,000 square meters nationwide from 2025. By 2050, all buildings will be required to achieve the highest grade in terms of energy self-sufficiency, requiring early preparation.

※ Zero Energy Building (ZEB): It refers to green buildings designed to minimize energy load and consumption by utilizing new and renewable energy sources.

Time of Occurrence	Short-term, mid-term, and long-term
Probability	Very likely
Target	SK ecoplant solution business

● Zero Energy Building (ZEB) Energy Self-Sufficiency Grade set by the Korean Government



Impact

If a building fails to achieve 20% energy self-sufficiency, it may face restrictions on receiving approval. According to our own analysis, to achieve an energy self-sufficiency rate of 20%, solutions such as installing solar power equipment in buildings are necessary, and there is a possibility that this will incur additional construction costs of KRW 160,000 to KRW 250,000 per square meter for SK ecoplant's major buildings. If these risks are not adequately prepared for, construction costs could rise, undermining profitability and corporate reputation. This could also result in decreased competitiveness in the solution business.

Our Responses

① With the creation of a TF in 2021, SK ecoplant has geared up for the Zero Energy Building Certification System. The Solution Business Division has assessed the current energy self-sufficiency of the buildings and established design standards to achieve 20% energy self-sufficiency. In 2022, a roadmap was developed to improve annual energy self-sufficiency. Especially during the phases of bidding and design, we have quickly and effectively optimized the function of passive and active technologies, as well as new and renewable energy solutions. Additionally, we have developed a tool for performance self-assessment to estimate construction costs.

② Through our R&D activities, we have developed window-type solar and double door-type solar panels that can be applied to buildings. We have also conducted inspections on the durability, quality, and buildability of Building Integrated Photovoltaics (BIPV), a leading solution for zero-energy buildings, to achieve optimal standardization. We are making efforts to secure advanced energy solutions for buildings. This includes the application of mid- and large-sized Solid Oxide Fuel Cells (SOFC) to buildings, leveraging our energy business capabilities. A pilot project is currently in progress at the Knowledge Industry Center. Following a demonstration, the project will be expanded to other buildings.

Other Regulation Risks

EU Carbon Border Adjustment Mechanism (CBAM)

CBAM, a trade tariff, is designed to tackle the issue of carbon leakage, where carbon emissions shift from countries with strict carbon regulations to those with less stringent rules. As of September 2023, the primary products and services of SK ecoplant and its subsidiaries are not subject to CBAM. However, given the expected expansion of CBAM's scope and the potential for sales in the EU, we have been monitoring global regulations and verifying whether we and our subsidiaries are affected by these regulations.

● Details of Recently Agreed EU CBAM

Category	Key Contents
Timeline	Transition period: January 2023 ~ December 2025, and to be effective from January 2026
Target	All non-EU countries
Items	Iron and steel, aluminium, cement, fertilizers, electricity, six hydrogen products, some downstream products such as screws and bolts, and similar articles of iron or steel ※ Assessing the inclusion of organic chemicals, polymers, and other materials before the end of the transition period to expand the scope of the EU-ETS to all sectors until 2030.

Risk ⑩ ⑪ Acute and Chronic Physical Risks

Background

Physical risks to businesses posed by climate change have been escalating. Within the framework of S&P Global Climanomics®, SK ecoplant has conducted an analysis of the asset loss rate due to these physical risks. These risks include abnormal temperatures, rising sea levels, and droughts, which have potential impacts on its assets and business sites worldwide.

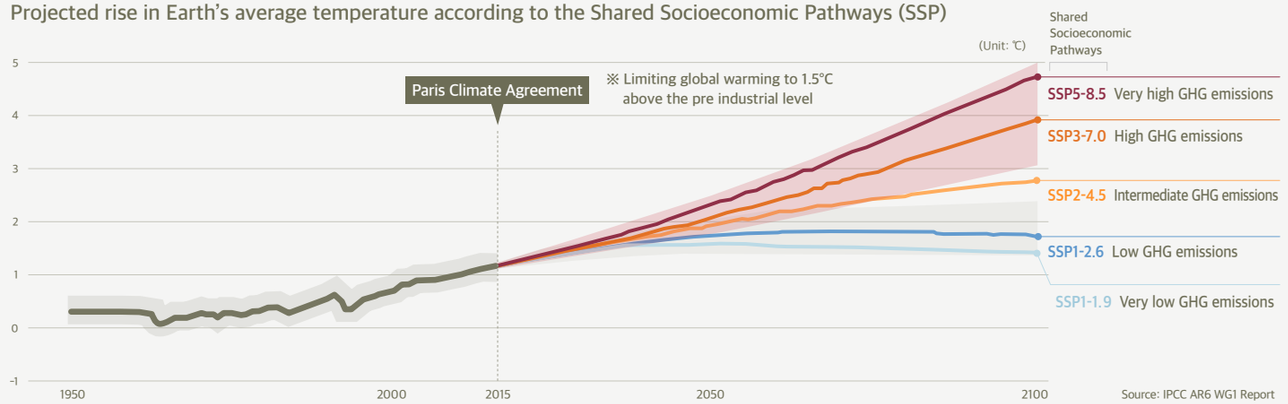
Time of Occurrence	Long-term
Probability	Likely
Target	Fixed assets and temporal assets (solution business sites) spread worldwide of SK ecoplant and its subsidiaries

● Analysis Overview

Period	2023 ~ 2040
Analysis Tool	S&P Global's Climanomics® Hazard modeling
Target	164 business sites (141 construction sites of SK ecoplant and SK ecoengineering, 3 domestic plants of SK oceanplant, 12 global business sites of TES, and 8 domestic business sites of EMC) ※ In the solution business, it is typical for business sites to cease operations three to five years after they have been established. As a result, an analysis was conducted on the sites situated in our primary regions.
Disaster	Abnormal temperatures, rising sea levels, droughts, stream flooding, heavy rains, typhoons, water stress, and wildfires
Scenario	SSP2-4.5 scenario and SSP5-8.5 scenario ※ SSP (Shared Socioeconomic Pathways): It refers to scenarios that depict potential future trajectories for socio-economic systems. These include aspects such as population, economy, and energy usage. These pathways are determined based on the intensity of radiative forcing and the degree of preparedness for future climate change in 2100. (defined in the IPCC Sixth Assessment Report)

Category	SSP2-4.5	SSP4-8.5
Global average temperature in 2100	+2.7℃	+4.4℃
Meaning	Assuming that the effects of climate change are mitigated and that socio-economic development is at a moderate level	Assuming that there is a high reliance on fossil fuels and that haphazard urban development is proliferating due to the swift advancement of industrial technologies

Projected rise in Earth's average temperature according to the Shared Socioeconomic Pathways (SSP)



Impact

1 Physical Risks Posed to SK ecoplant and Its Subsidiaries' Key Assets

We carried out a physical risk analysis on the three most valuable assets of SK ecoplant and its subsidiaries from 2023 to 2040. The findings indicate that there would be no significant asset loss in two of the scenarios. Abnormal temperatures are recognized as a primary risk to all assets, but their impact is anticipated to be low. In the long run, certain assets of SK oceanplant and TES are predicted to incur increasing asset loss due to unusual weather conditions, which could result in equipment damage, decreased worker productivity, and safety and health concerns. As a result, we plan to keep track of the situation through constant monitoring.

SSP 2-4.5 Scenario

	Chronic				Acute											
	Abnormal temperatures		Rising sea levels		Droughts		Stream flooding		Heavy precipitation		Typhoons		Water stress		Wildfires	
	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40
SKEP - A																
SKEP - B																
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SKOP - B																
SKOP - C																
TES - A																
TES - B																
TES - C																
EMC - A																
EMC - B																
EMC - C																

N/a	0%	Low	0~1%	Medium-low	1~5%	Medium	5~10%	Medium-high	10~15%	High	16%

SSP 5-8.5 Scenario

	Chronic				Acute											
	Abnormal temperatures		Rising sea levels		Droughts		Stream flooding		Heavy precipitation		Typhoons		Water stress		Wildfires	
	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40	'23-'30	31-'40
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SKOP - A																
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TES - A																
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TES - C																
EMC - A																
EMC - B																
EMC - C																

N/a	0%	Low	0~1%	Medium-low	1~5%	Medium	5~10%	Medium-high	10~15%	High	16%

2 Results of Physical Risks Faced by SK ecoplant in Key Regions (2023 ~ 2024)

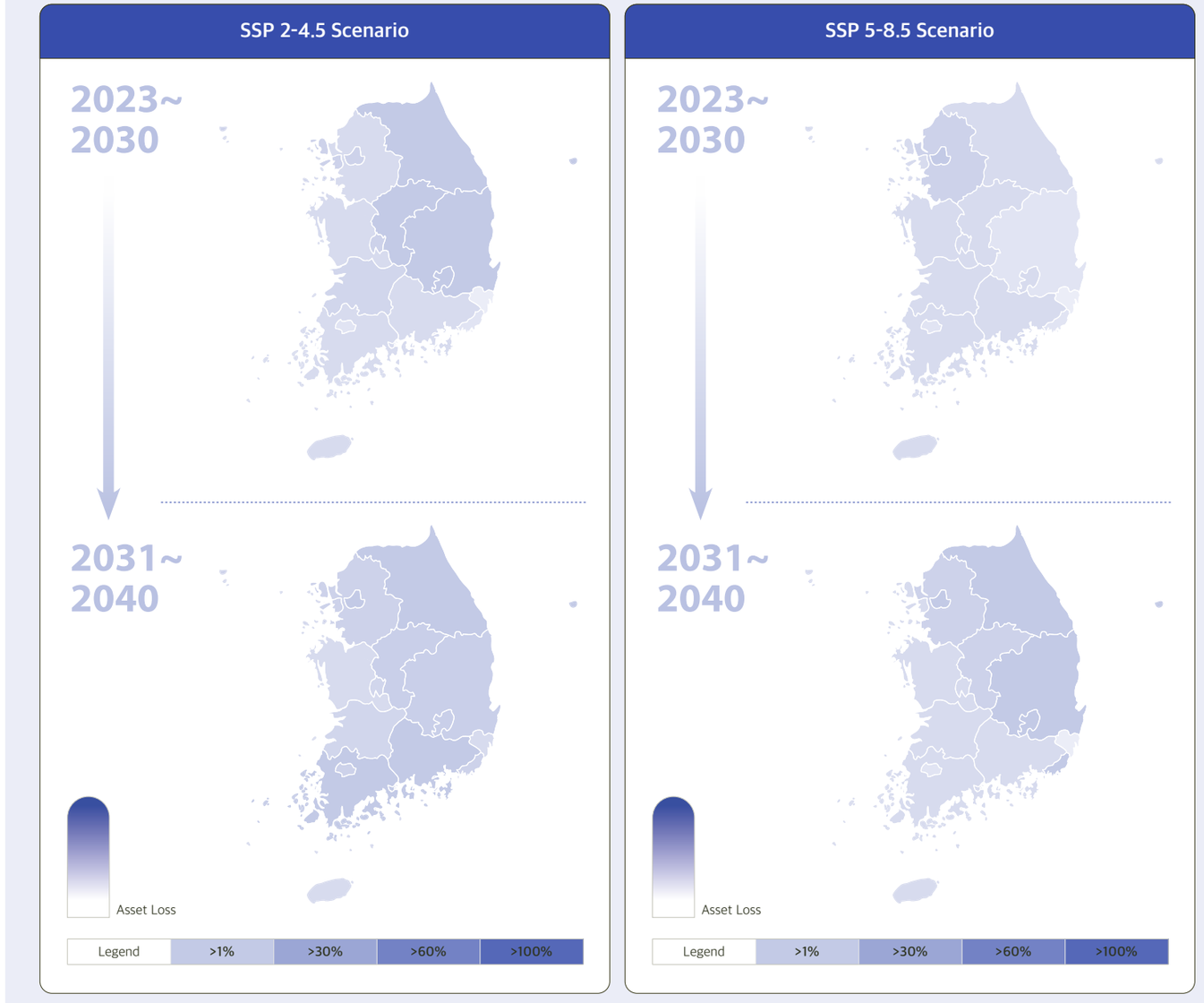
In the solutions business, business sites typically cease operations three to five years after their establishment. With the objective to incorporate the results of physical risk analysis into our site operations, we have analyzed the physical risks in key regions from 2023 to 2040. The findings indicate that in two scenarios, the loss of assets would not exceed 1% of all assets. Abnormal temperatures have been identified as a primary risk in all regions where we operate or plan to operate, but their impact is likely to be low. However, asset loss due to abnormal temperatures is on the rise. Accordingly, we have implemented monitoring to prevent safety and health issues and reduction in worker productivity.

3 Projected Annual Fixed Asset Loss of SK ecoplant and its Subsidiaries (2023 ~ 2100)

By 2050, we anticipate that physical hazards such as unusual temperature patterns, river flooding, and intense rainfall may occur, but these risks are projected to result in an asset loss of less than 1%. Furthermore, coastal inundation is not expected to have any financial implications. However, there is a possibility that river flooding could lead to around 1% asset loss after 2080.

Our Responses

In Korea, where the majority of our solution business operations are located, the impact of abnormal weather conditions and typhoons is relatively less compared to other countries. However, due to the increasing frequency and severity of abnormal temperatures, it is anticipated that there will be a rise in asset losses. SK ecoplant proactively communicates with all its business sites, providing them with preventive measures and an accident reporting process in anticipation of abnormal weather conditions. This approach helps us prepare for such situations and minimize risks. Furthermore, we distribute safety and health guidelines to all our subsidiaries in Korea to mitigate the risks associated with typhoons and abnormal temperatures.



Opportunity Ⓗ Growing demand for green hydrogen and ammonia nationwide

Background

Based on the fuel cell business capabilities, SK ecoplant is transforming itself into a green hydrogen provider. The expansion of the green hydrogen market requires a variety of solutions, from water electrolysis systems that utilize renewable energy sources like wind, to the production of ammonia for hydrogen distribution. In response, SK ecoplant is gearing up to establish a comprehensive value chain that encompasses domestic and international business development, substructure manufacturing & EPC, and O&M. As part of these efforts, we have collaborated with Bloom Energy to develop a solid oxide electrolyzer solution, which we plan to introduce in a commercial project for the first time. Taking advantage of our plant EPC capabilities, we aim to build facilities that can convert green hydrogen into ammonia.

Ammonia, a compound of hydrogen and nitrogen, has been in the spotlight as a promising green energy source and a method for transporting green hydrogen. Canada, in particular, is advancing policies aimed at fostering a hydrogen economy. A prime example is the 'Clean Hydrogen Investment Tax Credit' introduced in March 2023. This policy provides a tax credit of up to 40% for the construction of hydrogen production facilities that emit less than 4kg of carbon dioxide per 1kg of hydrogen produced. Additionally, it offers a tax credit of up to 15% for the construction of ammonia production facilities. This policy is anticipated to bolster the success of the recently initiated Nujio'qonik project and catalyze the rapid expansion of the green hydrogen and ammonia market in Canada. SK ecoplant has invested USD 50 million in this venture, assuming responsibility for the main equipment for water electrolysis and the EPC of the green ammonia plant across all business stages. Moreover, the green ammonia produced from green hydrogen will be exported to several European countries, including Germany. Germany plans to invest 9 billion euros by 2030 to transition to a hydrogen economy. The global demand for hydrogen is projected to reach 90~110Twh, underscoring the high demand for green hydrogen and its mode of transportation, green ammonia.

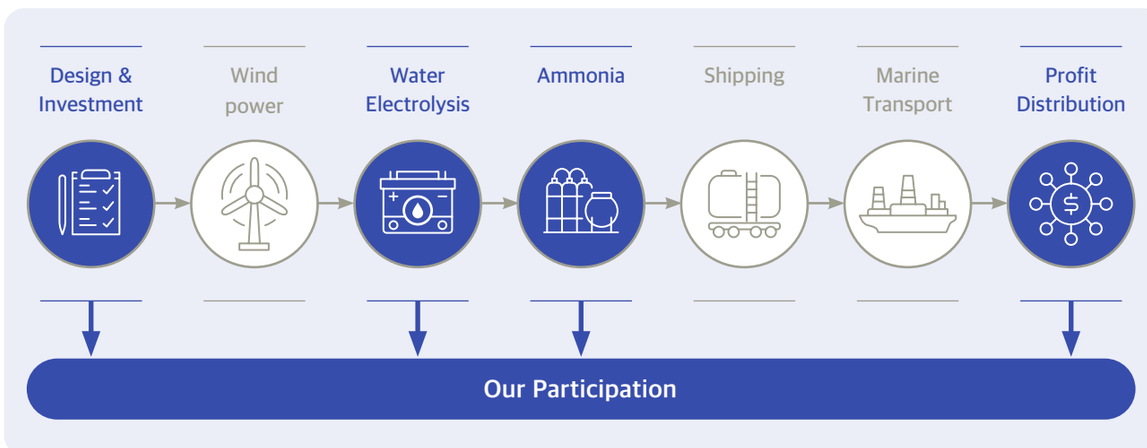
※ Green Ammonia: It refers to ammonia that is produced from renewable energy sources, similar to green hydrogen, but without the emission of carbon dioxide. The production process involves using electricity generated from renewable energy sources, such as wind and solar power, to convert water into green hydrogen through water electrolysis. This green hydrogen then reacts with nitrogen to produce ammonia. Compared to hydrogen, ammonia is easier to compress and liquefy. Furthermore, it has a storage capacity that is one and a half to two times larger than that of liquid hydrogen per unit volume, making it convenient for storing large quantities and transporting over long distances.

Time of occurrence	Short-to-medium term
Probability	Very likely
Target	SK ecoplant energy business and its subsidiaries
Impact	Profit generation

Our Responses

① SK ecoplant has entered into an agreement to participate in the first phase of the Nujio'qonik project, a large-scale green hydrogen commercialization initiative currently underway in Canada. The project is divided into three phases. In the first phase, we are responsible for constructing a 1GW onshore wind farm, a 600 MW water electrolysis facility, and a green ammonia production facility capable of producing 360,000 tons annually, which will be used to transport 60,000 tons of green hydrogen each year. Starting with this project, which is the first of its kind in Canada, we plan to extend our involvement in numerous green hydrogen projects in countries abundant in renewable energy resources, including the US, Australia, and the Middle East.

② Since 2021, SK ecoplant has collaborated with fuel cell component manufacturers to establish a fuel cell ecosystem in Korea and promote mutual growth. This collaboration resulted in the first commercialization of Solid Oxide Fuel Cells (SOFC) in 2022. Efforts have been ongoing to promote the localization of facilities around Solid Oxide Electrolysis Cell (SOEC) and contribute to the domestic hydrogen industry ecosystem. In pursuit of this goal, we are partnering with local companies and securing relevant patents.



Opportunity Ⓖ Rising demand for the recycling of EV waste batteries

Background

SK ecoplant is transitioning from being Korea's largest environmental company to becoming a global environmental corporation. In 2022, we acquired TES, a Singapore-based leader in the E-Waste sector that has ventured into the battery recycling business. We also invested in shares of Ascend Elements, a US-based company with innovative technologies in battery recycling and precursor manufacturing. Our subsidiary, TES, has unparalleled competitiveness in the ITAD business, boasting a wide network of 46 business sites in 22 countries worldwide and serving renowned multinational corporate clients.

Moreover, we hold a Basel Convention that covers 23 countries for the transportation of waste and hazardous substances between nations, which supports the steady expansion of our EV battery business. Alongside market expansion, we are witnessing an increasing demand for waste batteries due to their GHG mitigation effects, especially as Europe is moving towards making waste battery recycling mandatory. According to SNE Research, a market research firm specializing in energy, the volume of waste batteries is predicted to rise from 44GWh in 2025 to 338GWh in 2030, 1,329GWh in 2035, and 3,339GWh in 2040. Concurrently, the market size is expected to grow from KRW 700 billion in 2023 to KRW 21 trillion in 2030, and further to KRW 600 trillion by 2050.

Time of occurrence	Short-term, mid-term, long-term
Probability	Very likely
Target	SK ecoplant environmental business and its subsidiaries
Impact	Profit generation

Our Responses

① Our subsidiary TES built a waste EV battery recycling plant with an annual processing capacity of 2,000 tons in Shanghai, China, and commenced operation in May 2022. Through this facility, it plans to offer an integrated solution comprising waste battery recovery and nickel, cobalt, and lithium recycling technologies. Furthermore, we have set up additional waste EV battery recycling plants in the Netherlands, Singapore, the United States, Japan, Australia, and China, extending into the waste EV battery recycling business using TES's technology acquired through the mobile device waste battery recycling business. Consequently, sales are anticipated to increase through business expansion in accordance with market demands.

② We signed an MOU for 'collaboration in the battery recycling business in Europe' with EcoPro, a domestic leading company in battery cathode materials, and our subsidiary, TES. Through this MOU, we will obtain a steady supply of EV waste batteries and scrap from Europe and create a circulation system that produces batteries with recovered rare metals. In 2023, we acquired a pre-processing facility in the Netherlands, the logistics hub of Europe, and based on this, we have obtained more than 10 global pre-processing facilities by 2027. We are also striving to secure production yield by developing a domestic post-processing center.

③ Our subsidiary TES finished the construction of a 3,700㎡ ITAD-specialized plant in Las Vegas, Nevada, USA and started operation. In addition, we are obtaining recycling bases and logistics capacities to lead the European market in response to the anticipated expansion of Chinese battery companies entering into Europe in response to the U.S. Inflation Reduction Act (IRA).

④ Investment company Ascend Elements and SK ecoplant entered into an agreement in September 2023 to establish a joint venture for the construction of EV battery preprocessing facilities in the US. Through this joint venture, we have obtained a pre-processing facility scheduled to operate for 25 years and accessed the US EV battery recycling market ahead of time, while laying the foundation for expanding our battery recycling business in the North American region.

Opportunity Ⓑ Expansion of low-carbon construction materials market driven by growth of the green building market

Background

Since 2020, we have established and operated a task force to explore eco-friendly alternatives for low-carbon construction. Along with internal business item reviews, we are holding the 'Tech Open Collaboration' contest to identify and collaborate with small and medium-sized enterprises and startups with technological capacities to enhance their technological competitiveness and support their growth.

In the past, eco-friendly architecture was evaluated with a focus on minimizing the amount of energy consumed while operating buildings, such as heating and cooling energy. However, lately, as opinions have risen that eco-friendliness should be achieved from the perspective of the entire life cycle of buildings, from construction, operation, and disposal, interest in environmentally friendly building materials is also growing. Especially, market demand for alternatives for rebar among the main construction materials is increasing. Although rebars have been traditionally used as construction materials, they have the highest carbon emissions during the production process among construction materials. Therefore, there is an active movement towards developing low-carbon rebars from a life cycle perspective, as carbon management is becoming more important. The glass fiber reinforced plastic (GFRP) rebar, which replaces rebar, has been developed and is used in developed countries including the US, Japan, and Germany. It is expected that it will be essential to promptly respond to the progressively increasing demand in Korea, as we did in verifying the performance of GFRP reinforcement in 2020 and applying it in some construction works.

Time of occurrence	Short-term, mid-term
Probability	Very likely
Target	SK ecoplant solution business
Impact	Contribution to sales

Our Responses

① We created 'K Eco-bar' by adding waste PET to glass fiber reinforced plastic (GFRP), which can substitute existing rebar. As a company highly conscious of the environment, K Eco-bar is an alternative material developed for the recycling of waste to reduce carbon emissions generated during the construction process. K Eco-bar does not need scrap iron or limestone during production, but its tensile strength is more than twice as high and the amount of carbon emitted during the production process is 66.7% lower than the existing rebar1). As it does not corrode and is light in weight, it has high stability and usability during construction, drawing attention as a new material that addresses the drawbacks of existing rebar. We completed a new plant capable of producing 50,000 tons per year and our plan is to supply annually 200,000 tons in 2027.

② To ensure the product performance of K Eco-bar, we are seeking the acquisition of national design standards (KDS·KCS) and green product certification. Moreover, in order to obtain carbon credit corresponding to the GHG emissions reduced through the production of K Eco-bar, we entered into a business contract with Korea Midland Power Company and KCMT in November 2022 for 'K Eco-bar carbon credit development project.'

Period	Promotion activities
2023~2024	Acquire national design standard (KDS·KCS) certification and green product certification
2025~	Acquire and trade carbon credits (CDM, VCM) and obtain Korean Industrial Standards (KS) certifications

1) Carbon emission impact analysis of the glass fiber reinforced plastic (GFRP) (Korea Expressway Corporation, 2023)

Opportunity ① Globally expanding offshore wind market

Background

SK ecoplant changed its name in 2021 and transitioned its business structure from construction to the environmental, energy, and solution business, with the goal of becoming a leading eco-friendly company in Asia within three years. In this process, the company recognized the global demand for renewable energy as an opportunity and actively considered entering the renewable energy business. Consequently, in 2022, we extended our value chain in the renewable energy field by acquiring SK oceanplant (formerly Samkang M&T), which has global competitiveness in the manufacturing field of offshore wind power substructures. SK oceanplant is ranked first in Taiwan, the largest offshore wind power market in Asia, with a dominant market share of 44%, exceeding other companies in the region, and is recognized for its competitive edge by global wind power developers for its unapparelled quality and adherence to delivery times. In the future, we plan to leap forward as a leading global offshore wind power company by utilizing our EPC capabilities and swift business execution based on our engineering know-how, as well as synergies with SK Ocean Plant's ability to manufacture offshore wind power substructures.

Moreover, the size of the offshore wind power market keeps growing globally due to rising demand for renewable energy to address climate change. According to the International Energy Agency (IEA), installed offshore wind power capacity as of the end of 2020 amounts to about 35GW, and is projected to surge more than 10 times to about 234GW by 2026 and 382GW by 2030.

Time of occurrence	Short-term, mid-term, long-term
Probability	Likely
Target	SK ecoplant solution business and subsidiaries (SK oceanplant)
Impact	Contribution to sales

Our Responses

① SK ecoplant's subsidiary, SK oceanplant is vigorously entering the expanding offshore wind power generation market in compliance with Taiwan's 2025 energy transition and 2050 carbon neutrality policies. It has obtained cumulative orders for substructures worth a total of KRW 1.4445 trillion from 2019 to present (September 2023) from Taiwan's offshore wind power market, enlarging its market share in Taiwan to 44%. Moreover, it plans to boost sales by proactively securing orders for Round 3 offshore wind power projects with the scale of 15GW in Taiwan by 2035.

② SK oceanplant is enhancing its productivity to address the shortage of production capacity compared to the rapidly growing demand of offshore wind power. It strives for yard optimization and acquiring additional yards for the production of fixed offshore wind substructures. For the production of floating offshore wind power substructures, it plans to obtain a new production base by operating a new yard of 1.57 million m2 area (500,000 pyeong) in 2027.

③ SK ecoplant successfully developed 'K-Floater' with pure domestic technology, through the cooperation with POSCO, and has acquired basic design certification from the Norwegian Veritas (DNV). A floating structure is a facility that floats wind turbines like buoys in the sea, and is a key material for floating offshore wind power, but until now, the cost of design licenses alone has cost hundreds of millions of won.. Therefore, SK ecoplant's development of K-Floater is expected to ease overseas dependence by directly mass-producing key materials in Korea with quality comparable to European products

Opportunity Ⓙ Growing demand for Solid Oxide Fuel Cells (SOFC) as a means to achieve carbon neutrality

Background

SK ecoplant reinforced its fuel cell business in 2021 to create a renewable energy value chain, investing and forming a strategic partnership with Bloom Energy, a leading company in Solid Oxide Fuel Cell (SOFC) and Solid Oxide Electrolyzer (SOEC) technology. Based on this, we are taking the lead in the domestic and overseas markets in the SOFC field, which is a power generation source suitable for distributed power generation. We are doing business in both directions; one in 'urban distributed power generation' that supplies power to facilities that need 24-hour power supply, such as the Bupyeong Data Center, and 'RE100 distributed power generation' that supplies 100% renewable energy for industrial complexes or large city-scale demand sources such as Changwon Dongjeon General Industrial Complex and Busan Eco Delta Smart City.

Conventional centralized power generation has constraints in expansion due to issues arising from large-scale transmission and distribution. To address these issues, the distributed power generation market, which delivers stable power supply nearby demand source, is growing globally. According to the 'Study on Expansion Plans for Building Fuel Cells for Application to Zero Energy Buildings' published by the Society Of Air-Conditioning And Refrigerating Engineers Of Korea and the 'Global Fuel Cell Market 2019-2023' report published by TechNavio, a global technology trend research institute, the size of Korea's fuel cell market is projected to increase more than 10 times from KRW 266.1 billion per year in 2018 to KRW 2.5718 trillion in 2030.

Time of occurrence	Short-term, mid-term
Probability	Likely
Target	SK ecoplant energy business
Impact	Contribution to sales

Our Responses

① SK ecoplant has sustained a strategic partnership with Bloom Energy since 2018 and is taking the lead in the local production and domestic distribution of the world's most efficient SOFC. In January 2020, we formed a joint venture 'Bloom SK Fuel Cell' with Bloom Energy. In October of the same year, we completed building the Bloom SK Fuel Cell manufacturing plant in Gumi, Gyeongsangbuk-do and initiated domestic production of SOFC. In addition, we are vigorously working to localize products based on collaboration by developing a supply chain with domestic small and medium-sized companies such as HANSUN Engineering, LS Alsco, and TEXON. As of the end of 2022, we have obtained approximately 380MW of SOFC orders in Korea alone and ranked first in fuel cell market share for power generation in Korea.

② We finished constructing the 'Bukpyeong Leports Center Fuel Cell Power Plant,' the world's first heat supply power plant utilizing SOFC. We maximized energy efficiency by developing our own heat recovery system using the features of SOFC, which operates at high temperatures, and applying it for heating.

③ We are demonstrating our new technologies for capturing and liquefying carbon generated during the fuel cell power generation process for the first time in Korea in collaboration with Korea Southern Power Corporation. This technology was jointly developed by SK ecoplant and the startup Carbon Value that won the Tech Open Collaboration contest organized by SK ecoplant in 2021. The captured carbon undergoes a liquefaction process and is transformed into high-value liquefied carbonic acid. This will then be supplied to shipbuilding and marine equipment companies that have high demand for welding gas.

④ With an aim to comply with the compulsory Zero Energy Building (ZEB) certification system, we deliberated on enhancing related systems so that SOFC can be incorporated in the building energy self-sufficiency rate. In October 2023, Western Busan SK V1 Knowledge Industry Center, which adopted the SOFC system, obtained the preliminary certificate as a zero-energy building.

Resilience

Resilience from Transition Risks

Climate change influences all aspects of society, including future policies, regulations, and consumer demand. Hence, SK ecoplant evaluated the potential financial impact of climate change risks and opportunities on the company using a transition scenario that restricts the global average temperature increase to 1.5 degrees and the Korean NDC. Moreover, the carbon price presented in the NGFS scenario was adopted as our internal carbon price standard to calculate future carbon costs in pursuit of the carbon neutrality goal. Aiming to elevate the accuracy of the internal carbon price, we plan to monitor the actual global carbon price trend and minimize the gap with the carbon price trend presented by the scenario.

We endeavor to mitigate climate change by establishing a system to pursue carbon neutrality that encompasses our subsidiaries and identify potential risks in advance to minimize losses resulting from risk occurrence. For this purpose, we have set up and operated the Net Zero Transition Council to discuss company-wide carbon neutrality promotion issues from 2022. The Net Zero Transition Council examines monthly GHG emissions trends at SK ecoplant business sites and urges reductions at each workplace to accomplish the annual goal. Moreover, it supports awareness of climate change and enhances capabilities in the business sector through sharing and discussing major trends related to carbon neutrality at home and abroad. To augment our company-wide capacity to respond to climate change, we have introduced the performance evaluation system (KPI) in connection with carbon neutrality in each business division.

Business Transformation to Adapt to a Low-carbon Economy

SK ecoplant, formerly a construction company, transformed its business model in 2021 to focus on environment, energy, and solutions. The new name reflects the company's vision of 'planting the environment.' As a climate solution leader, we strive to lower the Earth's temperature by developing low-carbon construction materials, such as K Eco-bar, and by supporting climate change adaptation-related infrastructure projects, such as the RE100 industrial complex. These initiatives aim to enhance the resilience of not only the company but also nature and society.

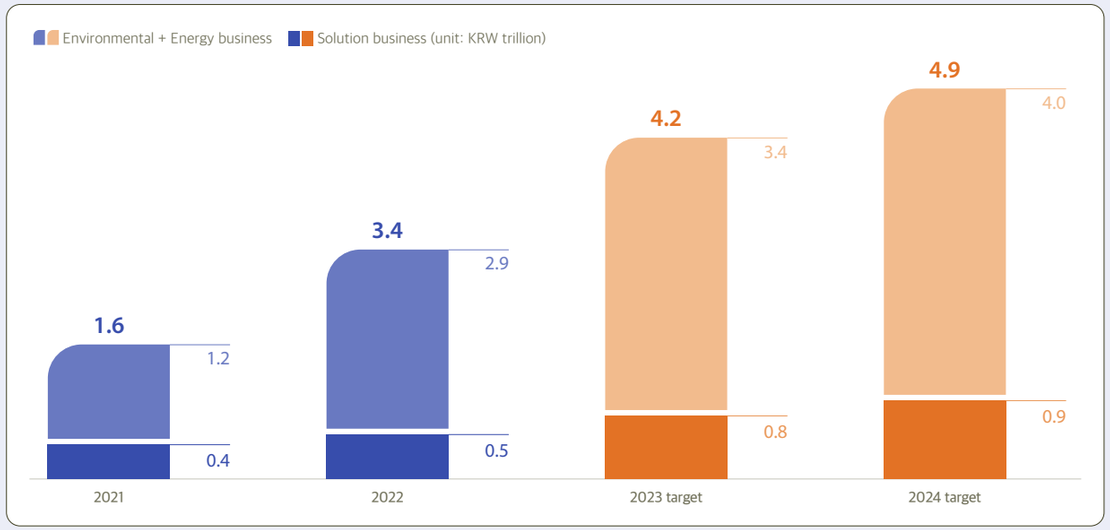
Economic Analysis of Carbon Credit Costs and Sales Revenue

We identified strengthening GHG emission regulations and rising carbon credit prices as our major climate change risks. We acknowledged that rising costs due to carbon regulations are unavoidable in the process of transitioning to a carbon-neutral economy. However, we anticipate that the impact of rising cost risks can be mitigated through proactive reduction efforts. Therefore, we declared the goal of 'carbon neutrality by 2040' and performed an economic analysis to verify the resilience of this goal. For the analysis, we used assumptions that the future carbon price trend presented by the 1.5 degree (World) scenario of the IPCC and the paid allocation of the Korean emissions trading system are expected to increase linearly by 33% by 2030. The analysis revealed that, in the long run, achieving the carbon neutrality goal would lower the cost of purchasing carbon credits compared to not reducing GHG emissions. Moreover, it would create the potential for additional revenue through selling surplus carbon credits.

Economic Aspect of RE100 Implementation

RE100 is a voluntary global initiative that aims to use 100% renewable energy for the electricity needs of business activities. Lately, global companies have been requiring RE100 implementation as a criterion for maintaining supplier contracts in order to achieve carbon neutrality at the supply chain level. So far, SK ecoplant has not received any direct requests from customers or investors to promote RE100 and carbon neutrality. Nevertheless, in accordance with SK Group's climate change response strategy, we declared to achieve carbon neutrality and RE100 by 2040. We plan to use the green premium system in the short term to achieve RE100, and to gradually lower operating costs by achieving RE100 through direct power generation and PPA in the mid- to long-term. By declaring and implementing RE100, the risk of reputational damage as a company that does not pursue carbon neutrality can be prevented, but we may face the risk of increased operating costs due to the implementation. Owing to the supply and demand of renewable energy and rising prices, the procurement cost is rising for companies that intend to use renewable energy, and when using an off-site PPA, additional costs, such as network usage fees, are also incurred.

Investment Scale and Plans for Green Businesses



As a Climate Solution Leader, SK ecoplant is expanding its eco-friendly business based on environment, energy, and solutions. We aim to solve the Earth's climate change problem by investing in various green initiatives. By 2022, we had invested a cumulative KRW 3.4 trillion in environment, energy, and solution businesses. We have built a more solid value chain based on the waste life cycle by investing in global leading companies in recycling and environmental treatment, such as TES, a global E-waste recycling leader, Cenviro, the largest comprehensive environmental company in Malaysia, and Ascend Elements, a US waste battery recycling company. In addition, we have strengthened the cooperation with Bloom Energy to enhance our position in the energy business. We also invested in renewable energy companies, such as Topsun and SK oceanplant, along with equity investments in renewable energy development projects, to secure distributed energy business capabilities. Furthermore, we are focusing on green building solutions as one of our key clean technology business activities. To this end, we aim to minimize environmental impact throughout the entire life cycle of buildings by establishing a zero-energy building platform and conducting research and development on eco-friendly design and construction technologies. We are planning a total additional investment of KRW 1.5 trillion in the environment, energy, and solution business areas over the next two years. Besides, our plan is to reinforce our ESG portfolio and accelerate the completion of the circular economy.

Eco-friendly Financing

We are actively engaged in securing investment resources for eco-friendly businesses by utilizing green bonds and sustainability bonds. We have received prior and follow-up certifications from an external evaluation agency on whether we comply with the International Capital Market Association (ICMA)'s Green Bond Principles (GBP) and Sustainability Bond Guidelines (SBG) during the financing process. We issued green bonds worth KRW 150 billion in 2022 and invested KRW 137.7 billion in acquiring eco-friendly companies, such as an electronic waste recycling business. We also allocated KRW 7.7 billion for new and renewable energy power generation projects and KRW 4.6 billion for eco-friendly building development projects.

Use of Eco-friendly Business Investment Resources

Category	Target project	Unit	2022
Acquisition of eco-friendly company	Investment in shares of electronic waste recycling company, etc.	KRW 100 million	1,377
New and renewable energy	Offshore wind power, fuel cell power generation project		77
Eco-friendly buildings	Establishment of data center		46
Total		KRW 100 million	**1,500**

ESG Project Selection

We allocate the secured eco-friendly finances to ESG projects. We select the final investment targets through a thorough selection process as follows.

Selection process	ESG project	Considering social and environmental impact	Considering the balance of budgets for ESG financial products	Selecting the final project
Tasks	Classification of project according to the GBP, SBP, SBG of the ICMA and the green bonds guidelines of the Ministry of Environment (for ongoing and new projects)	Selection of eligible projects based on social and environmental impacts among all target projects (criteria: GHG reduction, energy efficiency, etc.)	Allocation of eligible project funds, utilization of raised funds, management, etc.	Notification to certification agencies, disclosure to investors

* We perform the above process for each new issuance of ESG financial products (corporate bonds, etc.) to select the target project.

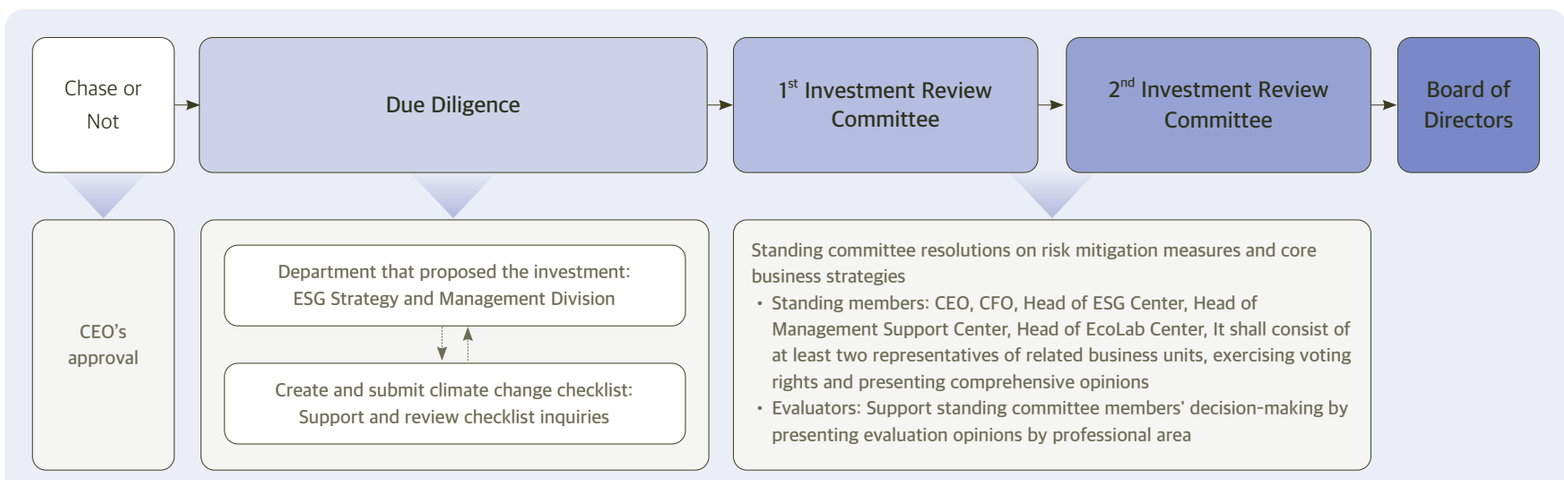
RISK MANAGEMENT

SK ecoplant integrates climate change risks into the company-wide risk management system to reduce the negative impact of climate change. We have adopted a system that identifies transition and physical risks derived from climate change in advance, evaluate their impact, and systematically respond to them based on each risk type. As part of this, we have implemented a climate change due diligence system that incorporates internal carbon prices with an aim to minimize physical damage from climate change disasters at our business sites. On top of that, we handle climate change risks by advancing multifaceted programs, such as assessing and supporting the supply chain's climate change response capabilities.

Investment Review Committee

We manage climate change risks in new business and business expansion stages jointly by the CFO, who leads the Investment Review Committee, and the ESG Strategy and Management Division under the ESGCenter, which is responsible for responding to climate change. Through the ESG risk review process, we have built a pre-response system for each risk type that may occur in the new business and investment stages, thereby minimizing the damage caused by the risks. The risk factors above a certain level are reported to the CEO and the BOD on a regular basis.

Climate change response has become a global priority, and inadequate assessment of climate change risks could adversely impact future financial performance. Therefore, the ESG Strategy and Management Division, which is responsible for climate change adaptation, is conducting risk analysis for investment projects. A climate change checklist was newly introduced in 2023 and is applied at our investment due diligence phase.



Review of Climate Change Risks at the Investment Due Diligence Stage

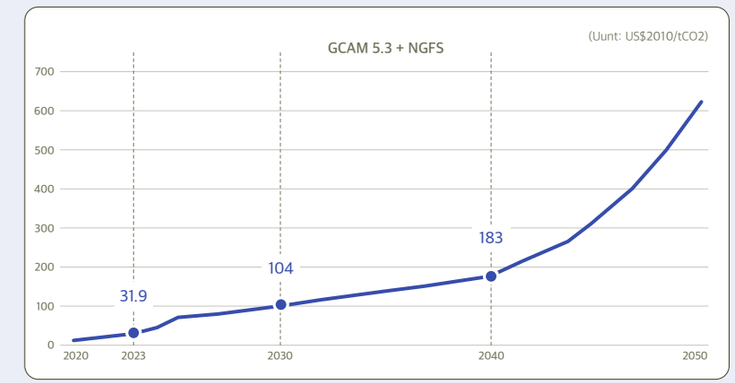
For climate change risks, the organization dedicated to climate change response conducts a due diligence and a risk review process, in which it considers not only the direct risk that SK ecoplant faces, but also the overall value chain risk that may arise from corporate acquisitions and investments. During the due diligence process, the department that proposes the investment utilizes the climate change checklist to identify and evaluate the significance of the risk associated with the GHG emissions, energy consumption, legal and regulatory risk, customer demand, and physical risk of the investment target.

Review of Climate Change Risks at the Investment Deliberation Stage

We operate an Investment Review Committee to review the strategic fit, economic viability, and ESG risk in a comprehensive manner before making new investment decisions. Relevant organizations collaborate in the investment deliberation process to examine the risk and devise countermeasures. Moreover, ESG risk management is integrated from the initial stage to reduce the risk level preemptively and evaluate the potential of value creation. The results of major ESG risk assessment and improvement measures are reported to the standing members of the Investment Review Committee. Only the agenda items that have passed the two rounds of committee votes are considered for investment.

The ESG Strategy and Management Division provides comprehensive opinions after examining climate change risks based on the due diligence outcomes. It evaluates whether it can facilitate the achievement of carbon neutrality from the perspective of climate change adaptation and mitigation in the short, medium, and long term. In addition, it utilizes internal carbon prices to quantitatively analyze risks stemming from GHG emissions and incorporates them into its opinion report. The internal carbon price adheres to the NGFS Climate Scenario model aiming for a cap on global warming of 1.5 degrees Celsius above pre-industrial levels, taking into account expected operating costs, regulatory response costs, conversion costs, and other factors.

● Carbon Price Trend under the NGFS Scenario



※ SK ecoplant is exempt from the Korean government's GHG regulations. However, as a climate solution leader, we have proactively implemented an internal carbon pricing system. During the investment review process, the internal carbon price is utilized to measure the magnitude of risk resulting from GHG emissions and we devise response plans accordingly. We applied the annual carbon price of the GCAM 5.3+ NGFS model of the NGFS Net Zero 2050 scenario, which aligns with our '2040 carbon neutrality' objective.

On-site Disaster Control

Some of our solution business sites are exposed to the external environment, which entails the possibility of diseases, injuries, or physical damages for workers who work outdoors at a high rate due to climate change. Korea, where the main business sites are situated, has a relatively mild intensity of abnormal climate events, such as abnormal temperature and typhoon, compared to other countries. Nevertheless, the extent of damage is escalating compared to the past.

Aiming to minimize the risk of abnormal climate events due to climate change and to be prepared, we guide the damage prevention measures and accident reporting system throughout the company when we anticipate any abnormal climate events. Not only SK ecoplant but also its subsidiaries are provided with the safety and health guidelines so that they can reduce the damage from abnormal temperature or typhoon.

Typhoon Damage Prevention and Control

When typhoon damage is expected at the domestic business sites of SK ecoplant and its subsidiaries, preliminary and intensive inspections are carried out to avert typhoon damage. We provide real-time typhoon movement route information by analyzing the magnitude and trajectory of the typhoon, and each business site is examined for damage to the workplace due to the typhoon, and secondary damage due to flying materials, flooding, and electric shock. In the event of material or human damage resulting from typhoon damage, it is promptly reported to CSO, and we endeavor to restore the damage.

Heat Wave Damage Prevention

Heat waves are associated with health issues for outdoor workers and have a significant correlation with diminished productivity of workers. When a heat wave caution or warning notice is issued, we modify working hours of workers and provide rest facilities and health care services to avert heat-related illnesses among the elderly and those susceptible to outdoor work at outdoor high-temperature work sites during heat waves.

● **Flexible Working System In Case of Heat Wave**

Level	Heat index	Break time	Other flexible working system
Caution	33℃ and above - below 35℃	50-minute work, 10-minute break	Suspend outdoor work during heat wave (14:00-17:00)
Warning	35℃ - 38℃	45-minute work, 15-minute break	Suspend outdoor work during heat wave (14:00-17:00)
Danger	38℃ and above	Rest for at least 15 minutes every hour	Suspend outdoor work during heat wave (14:00-17:00)

※ To avert heat-related illnesses at each site, we adhere to the guidelines of the Ministry of Employment and Labor and the Korea Occupational Safety and Health Agency, establishing our standards for break times during heat waves and standards for suspending outdoor work during extreme heat periods (2:00 p.m. to 5:00 p.m.).

Natural Disaster Reporting Process

Upon recognition of a human or material accident resulting from a natural disaster, it is promptly reported to the CSO. The reporting is made three times to share details for post-recovery of damage and recurrence prevention.

● **Incident Reporting System**

Reporting step	Reporting time	Purpose
1st step	At the time of occurrence or immediately after recognition	Report on the occurrence (date, location, extent of damage, etc.)
2nd step	Within 24 hours of the occurrence	Report on disaster summary
3rd step	Within 14 days of the occurrence	Report on the root cause, countermeasures, and implementation results

Value Chain Management

There is a growing demand not only for the company's Scope 1 and 2 emissions mitigation, but also for Scope 3 that is generated in the company's value chain. Against this backdrop, we established a Scope 3 reduction goal throughout our business value chain to achieve low carbon management. We are managing, supervising, and improving our supply chain's climate change response capabilities. In addition, we developed the 'Support Program for Biz. Partners' ESG Improvement' in 2021 in collaboration with Korean credit rating agencies. Since 2023, we have reported to the BOD on the supply chain evaluation outcomes and the risk level within the supply chain regularly so that they could be examined and administered at the leadership level.

Evaluation cycle	Once a year (recommended)
Evaluator	Third party professional organization
Evaluation type	100% data evaluation (verification through on-site inspection) ※ The 16 environmental items include GHG emissions related to climate change, establishment of a dedicated environmental department, and whether environmental education is provided.
Improvement request and support	Target: Target company for intensive management (Companies that score poorly on the ESG evaluation, which has a seven-point scale) Method: Support for ESG improvement (frequently)

Greenwashing

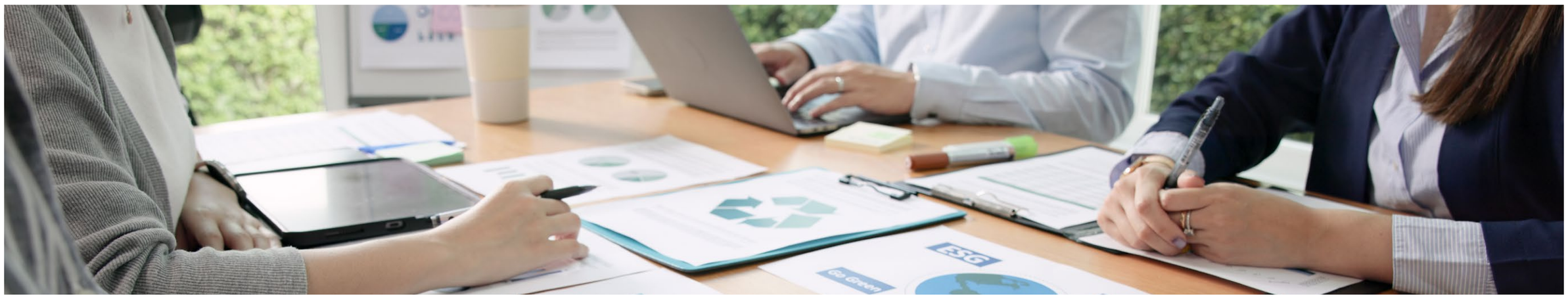
As of February 2023, there were more than 2,200 climate-related lawsuits filed worldwide. These are the litigations filed primarily against government agencies for violating the fundamental rights of citizens, including future generations. However, recently, there has been a surge in judicial lawsuits raising issues of greenwashing among companies' ESG management activities, particularly in the process of launching products related to climate change response. Consequently, regulations on greenwashing are being reinforced not only domestically but also internationally to prevent information distortion caused by advertisements that indiscriminately amplify the effects of responding to climate change. Accordingly, we have put in place an internal greenwashing prior review system to provide transparent and accurate information to stakeholders and to avert lawsuits and reputational damage due to false or exaggerated disclosures.

Prior Review System for Environmental Labeling and Advertising of External Disclosure

On the ground of the Fair Labeling and Advertising Act (Article 3, Paragraph 1) and the Environmental Technology Industry Support Act (Article 16-10, Paragraph 1), we have established and operated a company-wide prior review system for environmental labeling and advertising. In addition to advertisements, externally disclosed materials that may have an impact on domestic consumers, such as press releases and ESG information disclosures (sustainability reports, TCFD reports, etc.), are also subject to prior review. We distribute guidelines and self-checklists throughout the company so that the drafting department can conduct its own review. Organizations in charge of compliance and legal affairs conduct a prior review of environmental labeling advertisements and provide opinions for correction.

● Prior Review Process

Create draft by the requesting department → **Check on the guidelines and checklist** → **Review the green-related content by the compliance and legal affairs organizations** → Reflect modifications → Final review → Publish



METRICS & TARGETS

As a Climate Solution Leader, SK ecoplant possesses unwavering determination and clear goals. We have spearheaded initiatives to tackle environmental challenges, thereby paving the way for a sustainable future. Specifically, we have set our GHG reduction targets and diligently worked towards achieving them while expanding our green business activities. This section offers a transparent overview of our progress towards carbon neutrality over the past three years, as well as our eco-friendly economic activities aligned with the K-Taxonomy.

GHG Reduction Targets and Our Progress

2040 Net Zero

In October 2021, the SK Group set a goal to reduce carbon emissions by 21 billion tons by 2030, which is approximately 1% of the total global carbon reduction target. Keeping pace with this, SK ecoplant announced its own objective in 2021 to achieve 2040 Net Zero target, in accordance with the Paris Agreement. In 2022, we submitted our 2030 Near Term plan to the Science Based Targets initiative (SBTi), which was subsequently verified in January 2023. This accomplishment marked a first in our domestic industry.

2030 Near Term

SK ecoplant has established its Near Term targets in alignment with the 1.5℃ scenario, aiming to reduce Scope 1 and 2 emissions by 42% by 2030, using 2021 as the baseline year. These emissions encompass energy directly and indirectly consumed at our domestic business locations. Scope 3 emissions include both Scope 1 and 2 emissions from our key subsidiaries and sub-subsidiaries, as well as GHG emissions from the supply chain. We defined our GHG reduction targets by adopting the target setting method for general industry defined by the Science Based Targets initiative (SBTi).

Category	Scenario	Target	Baseline Year	Baseline Year Emissions (Unit: tCO_2eq)	Baseline Year Target Coverage	Target Year	Baseline Year Emissions (Unit: tCO_2eq)	Target Reduction Rate
Scope 1 & 2	1.5℃	Absolute quantity	2021	**31,092**	100%	2030	**18,033**	42%
Scope 3	Below 2℃	Absolute quantity	2021	**2,500,816**	67%	2030	2,081,676	25%

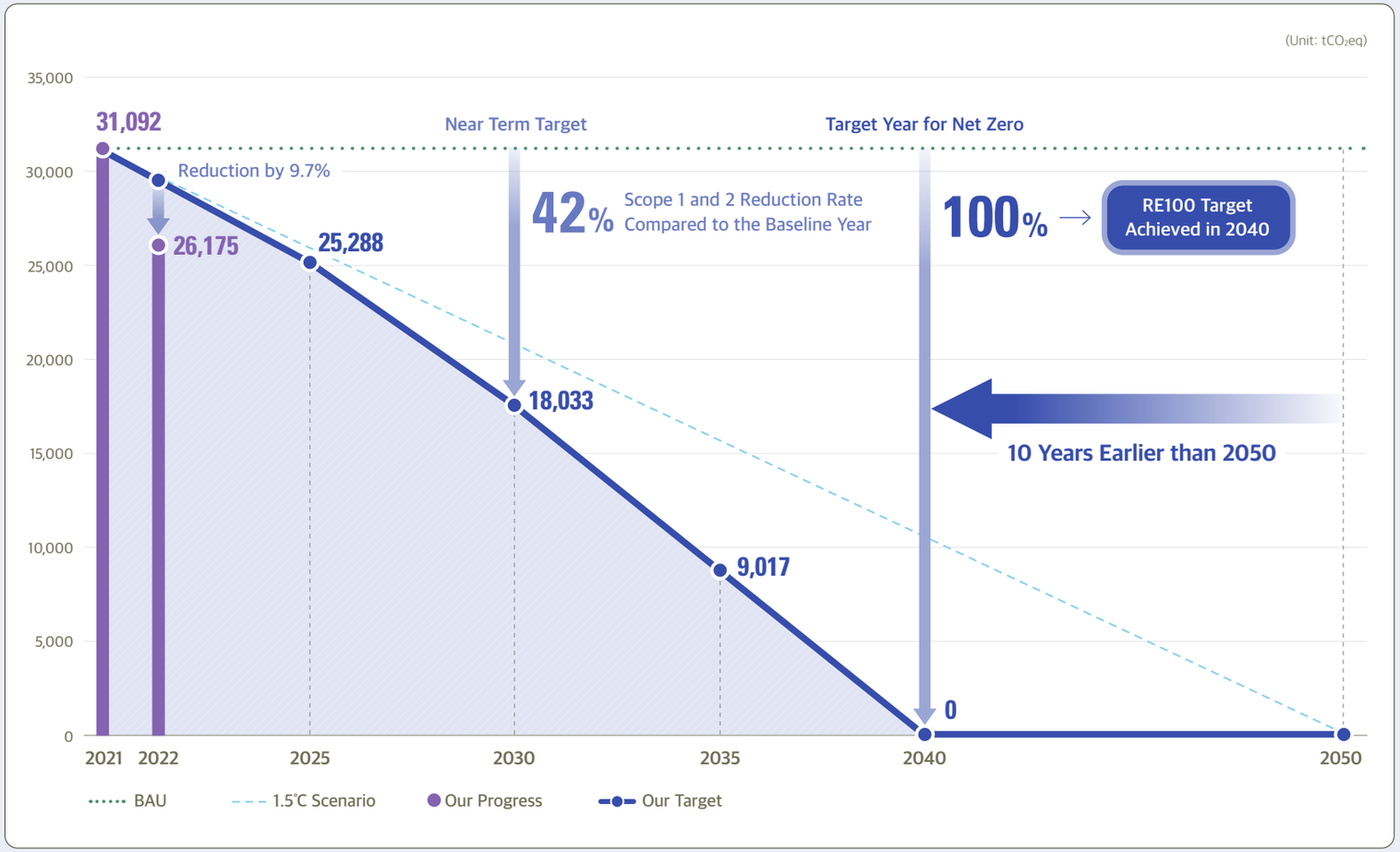
Implementation System

At SK ecoplant, we are in full swing with our company-wide efforts to lower GHG emissions through the Net Zero Transition Council. The Net Zero Transition Council sets reduction targets for each business division, monitors emissions on a monthly basis, and regularly tracks the progress of performance against those targets. In addition to mitigating GHGs, we ensure that all our employees stay informed about issues directly and indirectly related to our net-zero initiatives. This includes understanding the K-taxonomy and internal carbon pricing trends. We have also set a goal for low-carbon procurement and are actively developing a model to enhance building energy efficiency.

Roadmap for Scope 1 and 2 Reduction

In 2021, which we consider our baseline year, the total emissions from scope 1 and 2 were 31,092 tons. This included 7,293 tons (23%) from scope 1 emissions and 23,799 tons (77%) from scope 2 emissions. In order to achieve our reduction targets, we have conducted an analysis of energy usage and trends at our construction sites in Korea, including our headquarters building, G.Plant. Based on this analysis, we are identifying and implementing both direct and indirect mitigation measures.

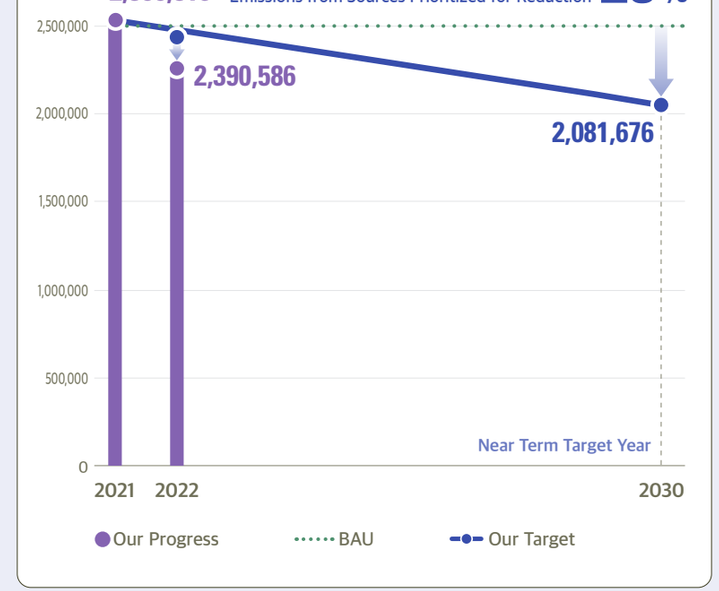
● Our Roadmap for 2040 Net Zero



Roadmap for Scope 3 Reduction

In 2021, which we regard as our baseline year, the total emissions from scope 3 were approximately 2.5 million tons. The combined emissions from Category 1 (Purchased goods and services), Category 6 (Business travel), Category 7 (Employee commuting), Category 11 (Use of sold products), and Category 15 (Investments) made up 95% of the total. We established a goal of reducing 25% of the prioritized target (1.67 million tons), which come from main emission sources, by 2030, and are pursuing reduction measures by exploring and applying various methods to achieve this goal.

● Our Scope 3 Reduction Target



Mitigation Measures

SK ecoplant is striving to cut GHG emissions by improving operational efficiency and transitioning to renewable energy sources.

1 Renewable Energy Procurement

To achieve the RE100 target by 2040, our strategy is to source renewable energy for our business locations and main office building through Power Purchase Agreements (PPA) and the Green Premium. In 2021, we opted for the Green Premium tariff, which increased our renewable energy usage to 5.2% of our total electricity consumption. We are actively implementing measures to further increase this percentage. Moreover, we are exploring various self-generation methods to utilize renewable energy sources with higher additionality, such as PPAs.

2 Switch to Eco-Friendly Vehicles (K-EV100)

Category		Unit	Accomplishments		Goal				
			2021	2022	2023	2025	2030	2035	2040
Usage rate of renewable energy[1]		%	5.2	9.8	15	23	52	90	100
Amount of renewable energy used		GWh	2.9	4.3	-	-	-	-	-
Total power consumption[2]		GWh	56	43.7	-	-	-	-	-
K-EV100	Cumulative no. of vehicles converted	Unit	6	16	20	77	250	250	250
	Cumulative conversion rate[3]	%	2	5.3	8	30.8	100	100	100

1) The usage rate of renewable energy is determined by the proportion of renewable energy consumed in relation to the total power consumption.
2) Total power consumption comprises both the electricity we purchase and the power we generate ourselves.
3) The accomplishments in 2021 and 2022 were based on the number of vehicles we owned. However, the goals set for 2023 and beyond are based on a fleet of 250 units.

3 Self-Generated Solar Power

SK ecoplant has equipped suitable business sites with solar panels, which aim to raise the use of renewable energy and curtail electricity costs. However, given that solution business sites typically cease operations three to five years after their establishment, it is not feasible to equip all sites with solar technology. Despite this limitation, we are committed to creating more opportunities for self-generation to enhance the use of power derived from renewable energy sources.

4 Electricity- and Hydrogen-Powered Construction Machinery

At our solution business sites, we utilize construction machinery (such as excavators) that run on diesel. We acknowledge these machines as significant sources of emissions. Recently, we have observed manufacturers developing low-pollution construction equipment powered by hydrogen and electricity. As these technologies become commercially viable, we plan to transition to these low-pollution alternatives.

5 Purchase of Low-Carbon Ready-Mixed Concrete

Ready-mixed concrete is a significant contributor to scope 3 emissions in our solution business. In an effort to curtail GHG emissions, we have increased our procurement of low-carbon ready-mixed concrete. Although expanding its usage aggressively remains as a challenge due to limitations on transportation distance, we are progressively increasing our purchases of low-carbon ready-mixed concrete.

6 Zero Energy Building

In alignment with the national policy of mandatory zero-energy buildings, we are bringing about green buildings with improved energy efficiency and self-sufficiency. Furthermore, during the design phase, we consider the building's life cycle, including the utilization of low-carbon materials.

7 Carbon Capture Utilization and Storage (CCUS)

We are considering a pilot project that captures carbon dioxide emissions from incinerators and converts them into useful resources. As part of this initiative, we are planning to collaborate with companies that possess Carbon Capture, Utilization, and Storage (CCUS) technologies.

8 Initiatives Joined by Employees

In an effort to instill ESG principles in our employees, we have been running a 'carbon reduction campaign' since 2022. Each year, as part of this campaign, we introduce new initiatives aimed at mitigating carbon emissions. At present, we have several programs in progress, including low-carbon meals, a turn-off campaign, the use of mugs and tumblers, and 'EP Market', an internal platform for secondhand goods. Thanks to the enthusiastic participation of our employees, we have achieved an average reduction of 18.64 $kgCO_2eq$ per person, which is 150% above our target. In 2022, approximately 89% of the total workforce, which is 3,601 employees, participated in this campaign. This resulted in a reduction of 67tCO_2eq in carbon emissions. Employees can earn points for their contributions, which are assessed through their carbon reduction activities. These points are then donated to 'Solar Cow', a project that installs solar power charging stations to support the education of children in Africa. In 2022, the total contribution from this program amounted to approximately KRW 150 million.

Scope 1 and 2 Emissions

Category	Unit	2021	2022
Total scope 1 and 2 emissions	tCO_2eq	31,092	26,175
Scope 1 and 2 emissions intensity	tCO_2eq/KRW billion	4.34	4.23
Scope 1 emissions	tCO_2eq	7,293	6,100
Scope 2 emissions	tCO_2eq	23,799	20,075

Energy Consumption Data

Category	Unit	2021	2022
Total energy consumption	GJ	657,596	514,002
Total energy consumption intensity	GJ/KRW billion	91.8	83
Total direct energy	GJ	120,879	94,501
Gasoline	L	310,205	302,441
Kerosene	L	758,865	721,785
Diesel	L	1,084,712	960,772
LPG	kg	2,202	8,142
LNG	kg	778,409	398,744
Total indirect energy	GJ	536,717	419,501
Electricity	MWh	55,908	43,698
Steam	TJ	-	-

Scope 3 Emissions

Category included in Scope 3 reduction target | (Unit: tCO_2eq)

Category	Classification	Main source	2021	2022
1	Purchased Goods and Services	Major construction materials (ready-mixed concrete, rebar, cement, etc.), construction equipment diesel/ gasoline, daily labor services, etc.	694,200	547,553
2	Capital Goods	IT equipment	71	73
3	Fuel- and Energy-Related Activities	Emissions from production and transportation of energy (diesel, gasoline, electricity, etc.) used directly or indirectly	443	1,951
4	Upstream Transportation and Distribution	Ready-mixed concrete transportation	33,912	29,587
5	Waste Generated in Operations	Mixed waste plastic, wastepaper, etc.	701	3,357
6	Business Travel	Modes of domestic and overseas business travel KTX, airline, bus, vehicle, etc.)	1,577	1,639
7	Employee Commuting	Headquarters and field sites (domestic, overseas) employees' means of commuting to work	2,467	3,356
8	Upstream Leased Assets	(Not applicable)	-	-
9	Downstream Transportation and Distribution	(Not applicable)	-	-
10	Processing of Sold Products	(Not applicable)	-	-
11	Use of Sold Products	SK VIEW, SK V1	1,141,988	1,105,166
12	End-of-life Treatment of Sold Products	Demolition of SK VIEW, SK V1	3,414	5,332
13	Downstream Leased Assets	(Not applicable)	-	-
14	Franchises	(Not applicable)	-	-
15	Investments	Scope 1, 2 of Greenhouse gas regulation targets and major subsidiaries ※ SK oceanplant, TES, EMC (four incineration companies, 1 landfill company) Daewon Green Energy, Green Environment Technology, and Saehan Environment	622,043	692,576
	Total		**2,500,816**	**2,390,586**

Green Economic Activities

SK ecoplant has categorized its business activities in accordance with the 'K-Taxonomy.' A system has been implemented to evaluate the compatibility of both current and prospective businesses with the K-Taxonomy. We have acquired and cultivated clean technologies in various fields, including the environment, energy, and solutions. Furthermore, we have actively invested in research and development to integrate the rapidly advancing digital technologies and clean technologies developed by globally innovative companies.

Korean Green Taxonomy

K-Taxonomy

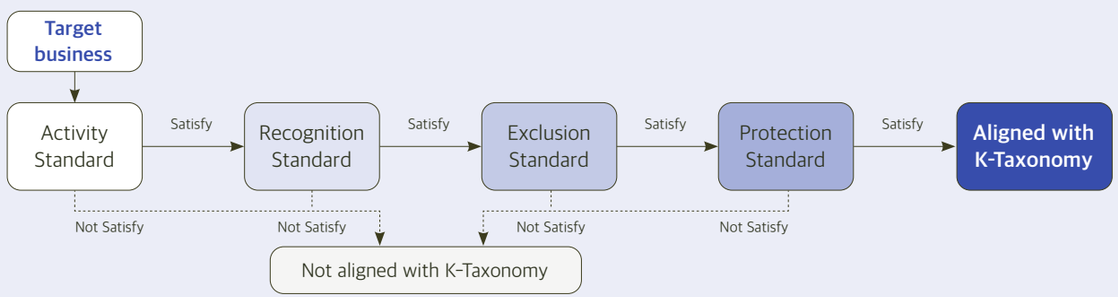
K-Taxonomy refers to the classification of corporate green economic activities contributing to environmental enhancement through GHG mitigation and adaptation to climate change.

Principles and Standards for Green Economic Activities

In order to be acknowledged as a green economic activity in line with the K-Taxonomy, it must satisfy four criteria: activity, recognition, exclusion, and protection.

- Activity Standard: The activity must be categorized under the economic activities specified in the classification.
- Accreditation Standard: The activity must fulfill the technical criteria to contribute towards achieving one or more of the six environmental objectives.
- Exclusion Standard: The activity must not cause any serious damage to the environment.
- Protection Standard: The activity must not violate laws and regulations concerning human rights, labor, safety, anti-corruption and destruction of cultural properties.

※ Even if it is not specified in the standard, all domestic laws, regulations, guidelines, and standards related to the economic activity must be complied with.



※ Korean Green Classification System Guidelines published by the Ministry of Environment (2022.12)

Our Economic Activities Aligned with the K-Taxonomy

Green Sector	Area	Economic Activity	Project
1. Greenhouse Gas Reduction	B. Power generation and energy	① Generation of renewable energy: Solar, solar thermal, wind, hydro power, ocean energy, geothermal energy, and hydrothermal energy	Green hydrogen production equipment of Nujio'qonik project
		⑪ Hydrogen production	
		⑫ Ammonia production	
	C. Transportation	③ Establishment and operation of pollution-free transportation infrastructure	Project for the establishment of infrastructure for electricity-powered railway
	D. Cities, buildings	② New construction, remodeling, and acquisition of zero energy buildings or green buildings	Zero energy buildings
	D. Cities, buildings	③ Construction and operation of facilities and infrastructure for GHG reduction in relation to buildings	Establishment of reduction facilities in semiconductor plants and development of sewage management infrastructure
3. Sustainable Water Conservation	A. Water	① Sewage and effluent management	
		② Manufacturing of innovative items, materials, components, and equipment	Provision of offshore wind substructures and creation of infrastructure for water supply
	A. Industry	③ Water supply	

※ Projects that satisfy the activity and accreditation standards of the K-Taxonomy released by the Ministry of Environment (December 2022)

R&D Investments

METHODOLOGY & GLOSSARY

Reporting Boundary

Corporation	Governance	Strategy		Risk management	Metrics and Targets		
		Physical	Transition		GHG reduction goal	Scope 1, 2*	Scope 3
SK ecoplant	●	●	●	●	●	●	●
SK ecoengineering	●	●			●		
SK oceanplant	●	●	●		●	●	
- Samkang S&C		●			●	●	
Eco frontier (TES subsidiaries included)	●	●	●		●	●	
EMC	●	●	●				
- Gyeonggi Environmental Energy	●	●	●		●	●	
- Gyeongbuk Environmental Energy	●	●	●		●	●	
- Gyeongin Environmental Energy	●	●	●		●	●	
- Chungcheong Environmental Energy	●	●	●		●	●	
- YS Tech	●	●	●		●	●	
Green Environment Technology	●				●	●	
Saehan Environment	●				●	●	
Daewon Green Energy	●				●	●	
DDS	●						
City Environment	●						
e-Medi One	●						
JA Green	●						
DY Polymer	●						
DY Indus	●						

*Scope 1 and 2 emissions of corporations besides SK ecoplant are included in SK ecoplant scope 3 Category No. 15.

Glossary

Task Force on Climate-related Financial Disclosures (TCFD)

TCFD is a consultative body established at the request of G20 financial ministers and central banks, and it presents standards for disclosing the financial impact of climate change on companies. Considering the stakeholders' positions, it recommends that companies disclose their corporate governance, strategies, risk management, metrics, and targets in response to climate change in their business reports. The TCFD recommendations are reflected in the climate disclosure regulations of the U.S. Securities and Exchange Commission (SEC) and the climate disclosure standards (IFRS S2) of the International Sustainability Standard Board (ISSB). Currently, it has been established and recognized as a standard of global climate disclosure.

Climate Change Mitigation and Adaptation

Response to climate change can be classified into 'mitigation,' which entails reducing GHG emissions that induce climate change or absorbing GHGs that have already been emitted, and 'adaptation,' which prepares for and copes with various situations arising from climate change. In order to effectively respond to the climate crisis, 'climate resilient development' integrating both mitigation and adaptation is required.

Carbon Disclosure Project (CDP)

CDP is a global authority on climate change capability assessment, with over 13,000 participating companies from all over the world. The participation criteria include being among the top 200 companies by total assets in each country's stock market, as well as receiving requests from investors or primary companies. Through CDP, the participating companies report their yearly GHG emissions, their approaches to address the challenges and prospects of climate change, and their reduction targets.

Zero Energy Building Certification

It is a system that encourages the adoption of green buildings with high efficiency by assessing the energy efficiency rating, energy self-reliance rate, and building energy management system of buildings, and assigning them one of five grades. The energy self-reliance rate of a building is determined by evaluating the amount of primary energy production and consumption per unit area according to the building design.

Climate Litigation

Climate litigation is a legal action that aims to mitigate the adverse effects of climate change or to hold accountable the parties that have caused them. Climate litigations can be broadly categorized into those brought against states and those brought against companies.

Greenwashing

Greenwashing refers to environmental claims that are unsubstantiated or misleading. As corporate social responsibility (CSR) and ESG have gained prominence, environmental performance has become associated with corporate profitability and funding opportunities. In this context, greenwashing is defined as the distortion of consumption and investment patterns by companies that deceptively promote the environmental benefits of their products for profit motives.

Science Based Targets initiative (SBTi)

SBTi is an initiative co-founded by the 2015 Carbon Disclosure Project (CDP), the United Nations Global Compact (UNGC), the World Resources Institute (WRI), and the World Wildlife Fund (WWF) to support the implementation of the Paris Agreement on Climate Change. More than 6,400 companies worldwide have joined this initiative. It offers science-based guidance and methodologies to assist in setting and achieving GHG reduction targets that can constrain the global temperature increase to 1.5 degrees. By joining SBTi voluntarily, companies can enhance their competitiveness by raising the credibility of their climate change mitigation objectives.

Biz. Partner

It is SK ecoplant's internal term referring to its business partners.

S&P Global Climanomics®

Climanomics is S&P Global's risk analytics platform that calculates the financial impact of physical risks on assets derived from climate change. It analyzes the loss rate of a company's assets based on the Shared Socioeconomic Pathways (SSP) that was applied in the 6th IPCC report.

K-Taxonomy

It is a guideline that defines green economic activities in compliance with the 'Environmental Technology and Industry Support Act,' amended on April 13, 2021, by the Korean Ministry of Environment. The guideline specifies the criteria for classifying green economic activities that contribute to six key environmental objectives (greenhouse gas reduction, climate change adaptation, sustainable water management, resource circulation, pollution prevention and control, and biodiversity preservation).

Greenhouse Gas Target Management System

It is a carbon-related regulation in Korea. It aims to achieve Korea's 2030 greenhouse gas reduction goal (40% decrease from 2018 level) by establishing GHG reduction targets for businesses and workplaces that generate large amounts of GHGs in accordance with the 'Framework Act on Low Carbon, Green Growth.' Companies that fail to meet their targets receive improvement orders and may face penalties if they do not comply with them diligently.

※ Korean standard: Businesses that emit 50,000 tCO_2eq or more in greenhouse gas emissions annually, or have business sites that emit 15,000 tCO_2eq or more, are subject to this system.

Emissions Trading Scheme

Under this system, the government annually assigns carbon credits to businesses that generate GHGs, permitting them to emit up to the allocated limit. The government also monitors the actual GHG emissions of the assigned businesses and facilitates the trading of carbon credits among businesses for any surplus or deficit. This is a GHG mitigation system established in Article 17 of the Kyoto Protocol and is in operation in Korea as well as in Europe and some states in the United States.

※ Korean standard: Businesses that have an annual average of 125,000 tCO_2eq or more in greenhouse gas emissions for three years, or have business sites that emit 25,000 tCO_2eq or more, are subject to this system.

Physical Risk

It refers to the risks stemming from the physical impacts of climate change, which can be classified into acute risks, such as typhoons, floods, and wildfires, and chronic risks, such as variations in temperature and rising sea levels.

Transition Risk

It refers to the risks resulting from the shifts in the perspectives of market actors as the economic system moves towards a low-carbon economy. Typical examples are policy, legal, technological, market, and reputational risks suggested by the TCFD recommendations.

Network for Greening the Financial System (NGFS)

NGFS is a global advisory body formed by central banks and financial regulatory authorities of various countries to deliberate on financial risk management and supervision standards pertaining to climate change and the environment, established in December 2017. It develops recommendations and guidelines to prepare for the impact of climate risks on the financial stability and soundness of governments and financial institutions, enhances the role of the financial system in risk management to attain the objectives of the Paris Agreement on Climate Change, and supports green and low-carbon investments by financial institutions.

Shared Socioeconomic Pathways (SSP)

Shared Socioeconomic Pathways (SSP) are five scenarios that reflect different levels of climate change mitigation and adaptation efforts by 2100, based on future socio-economic changes and the intensity of radiative forcing (existing RCP concept). They consider various factors such as demographics, economic growth, welfare, ecosystems, resources, institutions, technology, society, and policies.

Scenario Analysis

Transition Risk Scenario Analysis

With an aim to assess the economic viability of SK ecoplant's carbon neutrality initiative, three scenarios were examined to estimate the cost of complying with laws and regulations (Emissions Trading Scheme, etc.) in the absence of carbon neutrality implementation. Scenarios below 1.5 degrees and 2 degrees, which correspond to the 2040 carbon neutrality target, were chosen, and the IPCC 1.5℃ scenario was used as the primary scenario for the economic viability evaluation.

Category	Unit	2023	2024	2025	2026	2027	2028	2029	2030
NGFS 1.5 ℃ Below (Korea)	KRW	11,250	32,323	53,397	74,470	95,543	116,616	137,690	158,763
IPCC 1.5 ℃ (World)		11,250	28,214	45,179	62,143	79,107	96,071	113,036	130,000
NGFS 2.0 ℃ Below (Korea)		11,250	21,590	31,931	42,271	52,612	62,952	73,293	83,633

Note 1) The 2023 price is reflected as the highest price of KAU23 (as of June 8, 2023)
Note 2) The exchange rate applied is KRW 1,300.

Physical Risk Scenario Analysis: S&P Global Climanomics®

S&P Global Climanomics®

It analyzes the future asset value losses for real assets due to eight physical risks (droughts, wildfires, extreme temperature, water stress, coastal flooding, river flooding, tropical cyclones, and flooding) under four climate scenarios from Shared Socioeconomic Pathways (SSP). It incorporates user-provided information on the type, location, and value of assets, as well as assumptions on various climate scenarios endorsed by the IPCC and climate change modeling data, to estimate the average annual asset loss rate from 2021 to 2100.

Types of SSP Scenarios

Category	Scenario type	Target temperature	Conditions
SSP1-2.6	A scenario with strong carbon emissions reduction	About 1.8 degrees temperature increase by 2100	It assumes environmentally friendly and sustainable economic growth enabled by the development of renewable energy technology.
SSP2-4.5	A scenario with moderate carbon emissions reduction	About 2.7 degrees temperature rise by 2100	It assumes intermediate levels of climate change mitigation and socioeconomic development.
SSP3-7.0	A scenario with high carbon emissions, reaching about double the current level by the end of the century	About 3.6 degrees temperature rise by 2100	It assumes passive climate change mitigation policies and slow technology development, making the social structure vulnerable to climate change.
SSP5-8.5	A scenario with very high carbon emissions, doubling the current level by 2050	About 4.4 degrees temperature rise by 2100	It assumes high use of fossil fuels, rapid industrial technology development, and indiscriminate development.

GHG Emissions Calculation Methodology

Emission Reporting Standards

Operational control approach

GHG Emissions Calculation Standards

This report adopts the 2030 Near Term Target and emission calculation standards verified by SBTi for SK ecoplant in January 2023. SK ecoplant established its GHG inventory and handled data in accordance with the Emissions Trading Scheme's operational guidelines for emissions reporting and verification in Korea, where SK ecoplant's headquarters is situated. For major subsidiaries, those based in Korea follow the same regulations as SK ecoplant, while TES GHG emissions data is managed according to the IPCC's GHG Protocol as it is based abroad.

Emissions Verification Standards

ISO 14064-1:2006, ISO 14064-3:2006, WRI/WBCSD GHG Protocol, IPCC Guidelines for National Greenhouse Gas Inventories (2006), and the operational guidelines for emissions reporting and verification of the Emissions Trading Scheme

Organizational Boundary

SK ecoplant's headquarters and domestic business sites, SK ecoengineering, SK oceanplant, TES, EMC (4 incineration companies, 1 landfill company), Daewon Green Energy, Green Environment Technology, and Saehan Environment

Greenhouse Gas

Six major greenhouse gases (CO_2, CH_4, N2O, HFCs, PFCs, SF_6) in accordance with the 'Framework Act on Low Carbon, Green Growth'

Scope 1, 2 Emissions of SK ecoplant

Category	Fuel, energy	Main source of emissions
Scope 1	LNG	G.Plant (headquarters), field office
	Diesel	General vehicles, directly managed construction machinery, etc.
	Gasoline	General vehicles, directly managed construction machinery, etc.
	Kerosene	Concrete curing heater, etc.
	LPG	General vehicles, on-site cafeteria, etc.
Scope 2 (location-based)*	Electricity	G.Plant (headquarters)

* Korea, where SK ecoplant's headquarters is located, has a unified power system. Therefore, emissions are calculated using a location-based method with the national average electricity emission factor.

Scope 3 Emissions of SK ecoplant

Category included in Scope 3 reduction target

Category		Main source	Calculation methodology	Emission factor
1	Purchased goods and services	Major construction materials (ready-mixed concrete, rebar, cement, etc.), construction equipment diesel/gasoline, daily labor services, etc.	Using average data	Korea LCI DB, IPCC
2	Capital goods	IT equipment	Using average data	Korea LCI DB
3	Fuel and energy-related activities	Emissions from production and transportation of energy (diesel, gasoline, electricity, etc.) used directly or indirectly	Using average data, power losses	Korea LCI DB
4	Upstream transportation and distribution	Ready-mixed concrete transportation	Based on distance	Korea LCI DB, IPCC
5	Waste generated in operations	Mixed waste plastic, wastepaper, etc.	Using average data	Korea LCI DB
6	Business travel	Modes of domestic and overseas business travel (KTX, airline, bus, vehicle, etc.)	Based on distance	Ministry of Environment
7	Employee commuting	Headquarters and field sites (domestic, overseas) employees' means of commuting to work	Based on distance	Ministry of Environment
8	Upstream leased assets	(Not applicable)	-	-
9	Downstream transportation and distribution	(Not applicable)	-	-
10	Processing of sold products	(Not applicable)	-	-
11	Use of sold products	SK VIEW, SK V1	Specific method - use stage	LCA report
12	End-of-life treatment of sold products	Demolition of SK VIEW, SK V1	Product-based calculation	LCA report
13	Downstream leased assets	(Not applicable)	-	-
14	Franchises	(Not applicable)		-
15	Investments	Scope 1, 2 of Greenhouse gas regulation targets and major subsidiaries ※ SK oceanplant, TES, EMC (4 incineration companies, 1 landfill company), Daewon Green Energy, Green Environment Technology, Saehan Environment	Based on real investment data	

Verification Statement

GHG Verification Statement

Independent Verification Statement

SK ecoplant Co., Ltd.

Place of business in Korea : G.plant, Gwanhun building, Busan Housing Culture Center, Yangji Document Center, Construction site(98 sites)

The Korea Management Registrar Inc. (hereinafter "KMR") has conducted the verification on the greenhouse gas (hereinafter "GHG") emission (Scope1,2&3) of SK ecoplant CO., Ltd(hereinafter "the Company") in 2022.

SCOPE

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

STANDARDS

- ISO 14064-1:2006, ISO 14064-3:2006
- WRI/WBCSD GHG Protocol
- IPCC Guidelines for National Greenhouse Gas Inventories (2006)
- Guidelines for Reporting and Certification of Emissions in the Greenhouse Gas Emissions Trading Scheme

LIMITATIONS

The verification has inherent limitations that may arise in the process of applying standards and methods.

RESULTS

- GHG verification has been performed to meet the limited assurance level according to the verification standards.
- We express that no significant errors were found in the calculation of emissions during the verification process, and that relevant activity data and evidence were appropriately managed and calculated. As a result, we express an "qualified" opinion.

Emissions		Direct Emission (Scope1)	Indirect Emission (Scope2)	Total Emissions (tCO_2 eq)	Other Indirect Emission (Scope3)
2022	Domestic	6,100	20,075	26,175	2,390,586

※ SCOPE 3 : CAT 1/2/3/4/5/6/7/11/12/15

ISO 14064-1 April 27th, 2023 Authorized By E J Hwang

CEO **Eun Ju Hwang**

KMR_VCV_23010

2022 Greenhouse Gas Verification Statement

SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

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Approved science-based target

The Science Based Targets initiative has validated that the corporate greenhouse gas emissions reduction target(s) submitted by

SK ecoplant

have been deemed to be in conformance with the SBTi Criteria and Recommendations (version 4.2). The SBTi's Target Validation Team has classified your company's scope 1 and 2 target ambition and has determined that it is in line with a 1.5°C trajectory.

The official target wording is:

SK ecoplant commits to reduce absolute scope 1 and scope 2 GHG emissions 42.0% by FY2030 from a FY2021 base year. SK ecoplant also commits to reduce absolute scope 3 GHG emissions from purchased goods and services, businesses travel, employee commuting, use of sold products, and investments 25% within the same timeframe.

Date of issue: January 2023

Certificate Number: SKEC-SOU-001-OFF

An initiative by CDP DISCLOSURE INSIGHT ACTION · UN GLOBAL COMPACT · WORLD RESOURCES INSTITUTE · WWF

2023 SBTi Validation Statement

SK ecoplant