

# Welcome to your CDP Climate Change Questionnaire 2023

## C0. Introduction

### C0.1

**(C0.1) Give a general description and introduction to your organization.**

Kakao, the leading messaging platform in Korea with Kakao Talk at its core, operates a diverse range of businesses, including Commerce, Mobility, Payment, Games, Music, and Story. These businesses synergize within an ecosystem centered around Kakao Talk, connecting everyday life through mobile technology and bringing unique advantages to users. Key investment areas for Kakao include Kakao Mobility, which is transforming the transportation landscape; Kakao Pay, shifting financial behavior paradigms; and Kakao Entertainment, along with Kakao Piccoma, bolstering the content business.

We have identified ESG as 'Kakao's commitment and responsibility to a better world.' Four focal areas have been established and are being pursued: resolution of social issues, shared growth, digital responsibility, and environmental sustainability. Acknowledging the profound implications of climate change, Kakao actively participates in global initiatives to combat it. Our environmental management strategy prioritizes (1) promoting climate change adaptation, (2) delivering green digital services, (3) conserving resources and protecting the environment, and (4) preserving biodiversity. Further, we have unveiled the 'Active Green Initiative' to achieve net-zero greenhouse gas (GHG) emissions by 2040. To realize this aim, we are undertaking measures to reduce GHG emissions across our business operations, including using renewable energy, transitioning to electric vehicles, and establishing a climate change-responsive supply chain foundation.

### C0.2

**(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.**

**Reporting year**

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**Start date**

January 1, 2022

**End date**

December 31, 2022

**Indicate if you are providing emissions data for past reporting years**

Yes

**Select the number of past reporting years you will be providing Scope 1 emissions data for**

1 year

**Select the number of past reporting years you will be providing Scope 2 emissions data for**

1 year

**Select the number of past reporting years you will be providing Scope 3 emissions data for**

1 year

## C0.3

**(C0.3) Select the countries/areas in which you operate.**

Republic of Korea

## C0.4

**(C0.4) Select the currency used for all financial information disclosed throughout your response.**

KRW

## C0.5

**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.**

Operational control

## C0.8

**(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?**

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	KR7035720002

## C1. Governance

### C1.1

**(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

#### C1.1a

**(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual or committee	Responsibilities for climate-related issues
Board-level committee	<p>1. Position and Reasons for Assigning Responsibilities Kakao is developing ESG governance to ensure sustainable growth over the long term through transparent governance. A resolution by the Board led to establishing of the ESG Committee, comprised of two independent directors and one inside director, operating under the Board's supervision. The ESG Committee serves as the highest decision-making body, responsible for reviewing Kakao's ESG strategic direction, non-financial matters related to the environment and society, non-financial risk reviews, and managing and overseeing ESG performance. It also conducts the final review and approval of Kakao's Commitment and Responsibility Report and key issues identified through the materiality assessment, as reported by the ESG Business Division, an ESG-dedicated team within Kakao.</p> <p>2. Level of Responsibility Kakao's ESG Committee, operating under the Board, makes final decisions, which are reflected in our business operations. When issues related to climate change arise, the ESG Business Division analyzes and evaluates the risks and opportunities presented by these issues and reports to the CEO. The CEO, who also serves as the executive officer and oversees ESG, has been delegated the responsibility for managing environmental and social impacts by the ESG Committee. After considering the results of the materiality assessment of the reported climate change issues, the CEO determines their potential impact on Kakao and decides whether to establish organizational performance goals, implement reductions, monitor performance, and execute critical action plans. The CEO makes decisions on material issues and reports to the ESG Committee and the Board, the supreme decision-making body, for decisions on critical issues.</p> <p>3. Decision-Making Examples In 2022, one of the key issues reported to Kakao's ESG Committee was Net-zero. Recognizing the urgency of the climate crisis, the ESG Business Division, a</p>

	<p>working group, identified the necessity to respond to climate change. The team analyzed the risks and opportunities related to this issue and communicated the results to the CEO. Deeming the issue as having significant implications for Kakao, the CEO relayed this matter to the ESG Committee and the Board, the top decision-making authority. Upon receiving the report, the ESG Committee set the groundwork for a company-wide environmental management system and announced the goal of achieving Net Zero by 2040.</p>
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## C1.1b

### (C1.1b) Provide further details on the board’s oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
<p>Scheduled – some meetings</p>	<p>Reviewing and guiding annual budgets</p> <p>Overseeing major capital expenditures</p> <p>Overseeing acquisitions, mergers, and divestitures</p> <p>Overseeing and guiding employee incentives</p> <p>Reviewing and guiding strategy</p> <p>Overseeing and guiding the development of a transition plan</p> <p>Monitoring the implementation of a transition plan</p> <p>Overseeing the setting of corporate targets</p> <p>Monitoring progress towards corporate targets</p>	<p>With the rise of importance on responding to climate change, Kakao announced ‘2040 Net-Zero’ environmental management goals and established ‘Active Green Initiative’, with ‘joining global environmental standards’, ‘managing/operating key environmental indicators’, ‘contributing to eco-friendliness through service’, ‘performing eco-friendly activities with users and partners’ as its tasks. Kakao strives to reduce carbon emission generated not only from Kakao businesses, but also from value chain with the goal of 2040 Net Zero. Kakao also drives various greenhouse gas emission activities.</p> <p>In the process of establishing governance system and strengthening company-wide efforts to achieve environmental management targets, it was determined that management and decision-making at the board level was necessary. Kakao established ESG Committee under the board. The committee serves as the basis for the company-wide environmental management and supervises and reviews whether the ESG including regular environmental management plans are implemented.</p> <p>ESG Committee regularly monitors climate change issues with huge impact on Kakao. Kakao also considers perspectives of both strategic and financial for ESG issues with impact corporate sustainability. Impact on business such as compliance, corporate/technology,</p>

	<p>Reviewing and guiding the risk management process</p>	<p>climate change and environmental risk that may be incurred during business operation are comprehensively managed. In addition, exchange rate, interest rate, capital, credit, tax, etc. are considered to manage the impact on finance. The analyzed results are then connected to our risk management process for monitoring and management. Kakao reflects annual budget establishment, key capital expenditure management and decision-making on merger and acquisition as well as disposal in our strategy according to the level of climate change impact determined by the materiality assessment process.</p> <p>In addition, the ESG Committee decided to introduce KPIs related to 'responding to climate change by establishing carbon reduction targets and implementing roadmaps' to allow the management including CEO to fulfill their social responsibility. Accordingly, Kakao evaluates KPI performance as per the indicator related to strengthening of ESG management implementation and provides corresponding monetary compensation, improving the ability to respond to climate change.</p> <p>Our ESG Committee has set goals such as '2040 Net Zero' and 'RE100' and is monitoring the achievement and progress of the goals on a regular basis. The committee established a climate transition plan in consideration of our assets, operating system and value chain to achieve goals. We monitor key elements such as governance, scenario analysis, financial planning, value chain participation and low-carbon initiatives, policy participation, risks and opportunities, goals and accounting management including verification so that the climate conversion plan can be implemented.</p>
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## C1.1d

**(C1.1d) Does your organization have at least one board member with competence on climate-related issues?**

	<p>Board member(s) have competence on climate-related issues</p>	<p>Criteria used to assess competence of board member(s) on climate-related issues</p>
<p>Row 1</p>	<p>Yes</p>	<p>The ESG Committee forms the cornerstone of Kakao's company-wide environmental management and functions as the highest decision-</p>

		<p>making body overseeing issues related to climate change. The Committee comprises members with exceptional expertise and insights in their respective fields. The C-level representative on the ESG Committee is the chief officer of Kakao ESG, who also holds the role of Chairman of the Kakao Impact Foundation and possesses a wealth of experience and expertise in ESG.</p> <p>Previously, during his tenure as CEO of Kakao Commerce, he spearheaded the rebranding of MAKERS PRIME, an in-house brand of the on-demand production platform Kakao Makers, as an eco-friendly brand. MAKERS PRIME is a practical fashion collection utilizing 100% low-impact materials. It was the first Korean retailer to acquire Better Cotton Initiative (BCI) and Global Recycled Standard (GRS) certification. Kakao has also encouraged consumer environmental awareness through eco-friendly products, using environmentally friendly raw materials and packaging via Kakao Friends. Based on these climate change mitigation activities and environmental experiences, the member offers reasoned ESG management guidance to Kakao and serves as a board member specializing in the climate change sector.</p> <p>Upon his appointment to Kakao's ESG Committee, he set forth Kakao's principles for addressing the climate crisis and announced the Active Green Initiative. This reflects Kakao's dedication to contributing to resolving environmental issues through its services. Furthermore, Kakao revealed a Net Zero by 2040 and established strategies to realize this goal through using renewable energy, electric vehicles, and supply chain climate change management, making efforts to adapt to climate change.</p>
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## C1.2

**(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.**

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### Position or committee

Chief Executive Officer (CEO)

### Climate-related responsibilities of this position

- Managing annual budgets for climate mitigation activities
- Managing major capital and/or operational expenditures related to low-carbon products or services (including R&D)
- Managing climate-related acquisitions, mergers, and divestitures
- Providing climate-related employee incentives
- Developing a climate transition plan

Implementing a climate transition plan  
Integrating climate-related issues into the strategy  
Setting climate-related corporate targets  
Monitoring progress against climate-related corporate targets  
Assessing climate-related risks and opportunities  
Managing climate-related risks and opportunities

## **Coverage of responsibilities**

### **Reporting line**

CEO reporting line

### **Frequency of reporting to the board on climate-related issues via this reporting line**

Quarterly

### **Please explain**

#### 1. Position and responsibilities

Kakao's ESG division regularly identifies climate change risks and opportunities and reports the relevant information to the CEO. The CEO oversees company-wide ESG strategies, and is entrusted with the responsibility of environmental and social impact management by the ESG Committee, the highest ESG decision-making body. The CEO then considers the results of the materiality assessment of the reported climate change issues to determine the impact on Kakao and sets the organization's performance goals, implements reductions, monitors performance and decides whether to implement major action plans. The CEO makes decisions on important issues and reports the key issues to ESG Committee and the Board of Directors, the highest decision-making body, to support decision-making.

As the highest level of management responsible for climate change issues, the CEO conducts climate change-related risks and opportunity assessment as well as management and supervision. The CEO also manages the identified climate-related issues in connection with company-wide processes and reflects them in the company-wide strategies and is responsible for managing the annual budget, including analyzing climate mitigation activities in terms of market. In addition, it was evaluated that sales would increase due to increased demand for low-carbon and eco-friendly products and services, so we decided to incorporate eco-friendly services into the platform and major capital and operating expenses are managed in the process. On top of that, the achievement of KPIs for managers in the business division and incentives payment are managed accordingly. In addition, we make decisions on the implementation of detailed tasks to set and achieve the '2040 Net Zero' goal, and establish and implement plans for the entire value chain, including assets and operations, to achieve the goal. Then, during M&A or sell-off, we make decisions considering climate-related issues.

#### 2. Monitoring method and assessment for climate change issues

Kakao's ESG Office, a dedicated organization for company-wide ESG, identifies risks and opportunities related to climate change through our own management process by

considering the six aspects of 'regulation, technology, legality, market, reputation, and physical environmental change'. Indicators such as impact on business (technology development and service planning/operation) and finance (growth, performance and market position) are considered and kakao's tolerance and risk aptitude are also considered to determine the need and priority for response. Results of the materiality assessment are reported to the CEO and the CEO makes decisions on all issues except for the key issues. Then, the key issues assessed as critical by the materiality assessment criteria are reported to the ESG committee and board of directors. The ESG Committee considers the CEO's decisions to review and make final decisions on the key issues.

### C1.3

**(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

### C1.3a

**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).**

**Entitled to incentive**

Chief Executive Officer (CEO)

**Type of incentive**

Monetary reward

**Incentive(s)**

Bonus – set figure

**Performance indicator(s)**

- Achievement of climate transition plan KPI
- Progress towards a climate-related target
- Implementation of an emissions reduction initiative
- Increased share of renewable energy in total energy consumption

**Incentive plan(s) this incentive is linked to**

Long-Term Incentive Plan

**Further details of incentive(s)**

Kakao reflects ESG elements to the KPI of management and relevant departments so that the staff including CEO can make decisions based on ESG. Kakao set a total of 4 strategies - 2040 Net Zero declaration and establishing strategies to respond to climate change, implementation of RE100 through renewable energy conversion in phases,



preparing and promoting eco-friendly architecture certification (LEED, etc.) guide, developing user-participation type carbon reduction program - as ESG performance indicators for the CEO. The Climate Transition Plan is evaluated annually according to key performance indicators (KPIs) linked to strengthening ESG management implementation. The results of these evaluations play a decisive role in calculating the CEO's performance-based remuneration, contributing to 15% of the total, thus offering a financial incentive for achievement.

**Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan**

Kakao's incentive standards are set by the long-term goal of 'responding to climate change through establishment of carbon reduction targets and implementation of the roadmap', initially set by our firm. Kakao reflects ESG elements to the KPI of management and relevant departments so that the staff including CEO can make decisions based on ESG. CEO, who is in charge of company-wide ESG, includes indicators related to the strengthening of ESG management implementation for consideration of bonus (15%) payment for the purpose of internalizing ESG management. To secure incentive, CEO promotes various tasks related to 2040 Net Zero declaration and establishing strategies to respond to climate change, implementation of RE100 through renewable energy conversion in phases, preparing and promoting eco-friendly architecture certification (LEED, etc.) guide, developing user-participation type carbon reduction program, to contribute to the company's environmental management goals.

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**Entitled to incentive**

Business unit manager

**Type of incentive**

Monetary reward

**Incentive(s)**

Bonus – set figure

**Performance indicator(s)**

Achievement of climate transition plan KPI  
Progress towards a climate-related target  
Implementation of an emissions reduction initiative  
Increased share of renewable energy in total energy consumption

**Incentive plan(s) this incentive is linked to**

Long-Term Incentive Plan

**Further details of incentive(s)**

Managers of business units are responsible for executing climate change tasks tied to the ESG performance indicators outlined in the CEO's KPIs. The KPIs of these business unit managers are established for individual businesses associated with the Climate

Transition Plan. Their monetary compensation is based on their success in meeting those KPIs and the outcomes of performance evaluations. Kakao promoted the internalization of company-wide ESG management by reflecting ESG factors in KPIs of the related departments.

**Explain how this incentive contributes to the implementation of your organization’s climate commitments and/or climate transition plan**

Kakao’s incentive evaluation criteria were set according to the company’s long-term goal of ‘responding to climate change through establishment of carbon reduction targets and roadmap implementation’. Kakao has promoted internalization of company-wide ESG management by reflecting ESG factors not only in the CEO and other employees, but also in the KPIs of related departments and has enabled business sector managers to further enhance their ability to practice. As the subject of climate change work, business sector managers directly seek and implement various detailed tasks to secure incentives, contributing to the achievement of our environmental management goals.

## C2. Risks and opportunities

### C2.1

**(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?**

Yes

### C2.1a

**(C2.1a) How does your organization define short-, medium- and long-term time horizons?**

	From (years)	To (years)	Comment
Short-term	0	3	
Medium-term	3	10	
Long-term	10	20	

### C2.1b

**(C2.1b) How does your organization define substantive financial or strategic impact on your business?**

**1. Criteria of critical strategic impact**

**(Assessment summary)** Kakao identified practical and potential impact from climate change as per the TCFD recommendations and establishes strategic path and management system accordingly. First, double materiality assessment is conducted to identify the key issues to consider among the ESG issues that impact kakao’s sustainability. Then, for the key issues to

be preferentially considered, assessment is conducted as per our management procedures. If the strategic impact criteria is met, then the issue is identified to have critical impact to kakao. **(Impact criteria)** First of all, Kakao set ① Scale of impact as X-axis and ② Scope of stakeholders as the Y-axis to assess key ESG issues as per the double materiality assessment matrix defined as “① Scale of impact X ② Scope of stakeholders”. For the key issues identified through the double materiality assessment, risks are evaluated as per the risk assessment criteria defined with ‘① Likelihood X ② Impact’ and the need and priority for response are decided in consideration of kakao’s risk tolerance and risk aptitude. the assessment is divided into time periods of short-term (0~3 years), mid-term (3~10 years) and long-term (10~20 years).

**(Assessment method)** Through ESG management team and environmental management TF in charge of practical environmental management and ERM Committee in charge of integrated risk management, Kakao regularly identifies risk and opportunity factors related to climate change and reports the relevant information to the ESG Committee.

## 2. Quantitative indicators used to define critical strategic impact

**(Strategic impact indicators)** The indicators used to define strategic impact are likelihood and impact. they are divided into low, medium and high and granted scores from 1 to 3. Kakao determines impact based on the risk assessment criteria defined as ‘① Likelihood X ② Impact’. If the two indicators of ‘① Likelihood X ② Impact’ are 5~9, the impact is deemed to be high and defined as critical strategic impact.

## 3. Examples

As an example, ‘eco-friendly product and service’ was selected as key ESG issue as a result of our double materiality assessment. Also, it was identified through the results of risk factor assessment that a delay in development or introduction of eco-friendly technology will lead to reduced brand value and expansion to reputational risk and have medium impact throughout the entire period from short-term and mid-term to long-term. In addition, combining eco friendly services in the platform may lead to positive reputation or new sales, and thus will have high impact throughout entire period from short-term and mid-term to long-term.

## C2.2

**(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.**

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### Value chain stage(s) covered

Direct operations  
Upstream  
Downstream

### Risk management process

Integrated into multi-disciplinary company-wide risk management process

### Frequency of assessment

More than once a year

**Time horizon(s) covered**

Short-term

Medium-term

Long-term

**Description of process**

- Climate change risk/opportunity identification, assessment and management process

(Process) Kakao routinely identifies risks and opportunities related to climate change through its ESG Business Team and the Environmental Management Task Force within the ESG Business Division, which oversees environmental management-related practices. This process occurs more than once per year. The identified key issues are categorized into risk and opportunity factors, and their impacts are evaluated based on short, medium, and long-term time frames. The impacts are assessed using a double materiality assessment matrix, and the evaluation results are periodically reported to the CEO. The CEO makes decisions based on these materiality assessment results, and key issues are reported to the ESG Committee and the Board, which are the highest decision-making bodies. Furthermore, the process related to climate change risk is integrated into the company-wide identification, assessment, and management process of risk. As per the company-wide risk management regulations, the Board and the ESG Committee analyze the potential loss impact of internal and external environmental changes on current or unexpected climate change-related risks. They then implement a distinct crisis management plan to manage risks through appropriate responses, supported by the ERM Committee, which is dedicated to risk management.

(Phase on the value chain) Kakao actively participates in resolving environmental issues, recognizing the criticality of these issues such as climate change and energy exhaustion due to greenhouse gas despite kakao is an Internet and mobile platform company with relatively lower impact on environment. In this context, Kakao identifies and addresses climate change-related issues not only at its directly operated business sites but also within its upstream and downstream operations. Kakao monitors GHG emission data to manage the environmental impact of its business operations and is creating an eco-friendly platform and service ecosystem. This allows users to contribute to reducing environmental impacts by using Kakao's services and platforms. In addition, in the process of selecting, assessing and managing partners, 'guide on sustainable partner management' element is added for comprehensive analysis and management of the supply chain.

- Detailed process per each phase

(Identification phase) First of all, Kakao identifies and evaluates key ESG issues as per the double materiality assessment matrix defined as '① Scale of impact X ② Scope of stakeholders'. To identify the impact, various aspects of policy/legislation, shareholder and investors' recommendations, media analysis, ESG Committee agenda, global initiative, megatrends, other stakeholder communication channels are also considered.

the identified key issues are divided to risk factors (conversion risk, physical risk) and opportunity factors (energy optimization, products and services) for impact assessment.

(Assessment phase) Detailed assessment process is as follows. as per the double materiality assessment matrix, if identified as key issue, the impact is assessed as per risk assessment criteria defined as '① Likelihood X ② Impact' and the impact is expressed in scores from 0 to 9. If the score is 5~9, the impact is deemed to be high and defined as the criteria for critical strategic impact.

(Reporting phase) If there is an issue related to climate change that will impact kakao, the ESG Office analyzes and assesses risk/opportunity regarding the issue and the climate change issue is frequently reported to the CEO who is in charge of ESG. The CEO is in charge of company-wide ESG strategy and is entrusted from the ESG Committee, the highest decision-making body for ESG, with the responsibility of managing risks on environment and society. The CEO considers the results of materiality assessment on the reported climate change issues to identify the impact on kakao and makes decisions on setting the organization's performance goals, implementing reduction, monitoring performance and carrying out the plan of key measures. The CEO conducts decision-making on critical issues and supports decision-making for the key issues among the critical issues by reporting to the highest decision-making body of ESG Committee and the board of directors.

(Response phase) Once the decisions on risks and opportunities of climate change are made, the relevant department prepares the relevant action plan, promoting continued and frequent monitoring and response activities.

#### - Specific Examples

In 2022, Kakao conducted a double materiality assessment using the Global Sustainability Reporting Guidelines and the double materiality concept to pinpoint key ESG issues influencing our sustainability. As a result, "eco-friendly products and services" emerged as a critical ESG issue. Kakao evaluated the impact of this issue by dividing it into risk and opportunity factors. Firstly, considering opportunity factors, it was determined that the propagation of value-oriented consumption trends could boost sales due to increased demand for low-carbon, eco-friendly products, and services. This would lead to decreased environmental impacts through improved energy efficiency and reduced carbon emissions, amounting to a medium or high level of impact over short, medium, and long-term periods. As for risk factors, potential delays in developing and implementing eco-friendly technologies and new industries were identified, potentially leading to decreased brand value and reputational risks. These were assessed as having a medium-level impact over short, medium, and long-term periods.

Consequently, Kakao acknowledged the importance of eco-friendly products and services, driving the development and provision of various such products and services following the CEO's decision. For instance, Kakao Makers runs 'Saegaburch,' a participatory upcycling project that discovers new value in used items. Saegaburch is an eco-friendly initiative that repurposes used clothing, offering a service to find new

applications for items at the end of their lifecycle. With customer participation, Kakao launched three such projects in 2022, contributing to reducing carbon emissions.

## C2.2a

### (C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	<p>- Enhanced Disclosure Obligations, Including Environmental Disclosure</p> <p>Kakao, a company required to adhere to environmental disclosure, has been aggregating and reporting GHG emissions and energy consumption for environmental management since 2021. The Ministry of Environment revised the Enforcement Decree Of The Environmental Technology And Industry Support Act (Environmental Technology Industry Act), making environmental information disclosure compulsory from 2022 for stock-listed corporations with total assets exceeding KRW 2 trillion. Alongside the amendment, the necessity for addressing and disclosing climate change-related matters is escalating with the finalization of the International Sustainability Standards Board's (ISSB) Global Standard for Sustainability and Climate-related Reporting. The ISSB's draft standards for sustainability and climate-related financial information disclosure of entities mandate companies to reveal details about their exposure to material sustainability-related risks and opportunities impacting the company and necessitates companies to disclose information to help investors evaluate the influence of material climate-related risks and opportunities on the company's value. Specifically, companies will need to disclose Scope 1, 2, and 3 information and must manage and transparently reveal information related to their value chains. In Korea, sustainability disclosure obligations will be enforced on KOSDAQ-listed companies with over KRW 2 trillion in assets by '25 and all KOSDAQ-listed companies by 2030.</p> <p>Should Kakao fail to meet environmental disclosure requirements, such as not disclosing environmental information or not amending environmental information despite a request, it may face penalties under the Enforcement Decree of The Environmental Technology And Industry Support Act and is likely to incur damages ranging between KRW 2 million and KRW 3 million.</p> <p>Estimated Damage Amount                      - 1st violation: KRW 2 million / 2nd violation: KRW 2.5 million / 3rd violation: KRW 3 million</p>

		<p>As obligations for disclosure, such as environmental disclosure, are reinforced, Kakao is addressing it as a risk related to climate change, understanding that inadequate responses could lead to penalties, a decline in brand value, and a rise in reputational risk. Therefore, our strategy is to continually enhance our environmental management system and augment the degree of information disclosure.</p>
<p>Emerging regulation</p>	<p>Relevant, always included</p>	<p>- Emissions Trading Scheme Inclusion</p> <p>Kakao, at present, is not subject to the Framework Act On Low Carbon, Green Growth and the Act On The Allocation And Trading Of Greenhouse-gas Emission Permits because it is using a leased data center. However, plans are in motion to operate our own data center in Ansan from January 2024, potentially making us part of the subjects during the 4th Basic Plan period ('26-'30) for the Emissions Trading Scheme (ETS). Consequently, Kakao could be included in the ETS in the short to medium term, making it imperative to establish a response organization and a plan in advance. The ETS is a market-based approach where the government assigns annual emission allowances to companies that emit GHGs, giving them the license to emit within their quota while also permitting the trading of surplus or shortfall emission allowances. Therefore, if a company is chosen as an allocation target in the future and enters the system, it must limit its GHG emissions below the quota. If emissions exceed the quota, the company is likely to face financial risks associated with purchasing emission allowances. Being an internet and mobile platform company, Kakao's Scope 2 emissions from electricity use constitute 99% of its emissions. As the company's electricity use is bound to increase in the future, and if it is designated as an eligible entity for the ETS, the reduction burden will likely intensify as it falls under the paid allocation category. Consequently, Kakao is managing ETS as a climate change risk.</p> <p>Kakao has analyzed the management and purchase costs of emission credits that might be incurred upon joining the ETS. According to the analysis, the cost of entering the ETS is projected to be KRW 1 billion in 2025 and KRW 2.5 billion in 2030.</p> <p>※ Costs to be incurred in the ETS = KRW 1 billion (as of 2025) to KRW 2.5 billion (as of 2030)</p> <p>To minimize the financial impact of integration into the ETS, Kakao has laid the groundwork for a company-wide environmental management system rooted in GHG reduction goals and has set mid and long-term GHG reduction targets. Moreover, we have implemented a GHG</p>



		inventory (Scope 1,2&3) to tally GHG emissions and to track energy usage.
Technology	Relevant, always included	<p>- Energy Saving Technologies in Data Centers</p> <p>A data center that houses servers, network lines, and other elements for storing a company's substantial amounts of information is designed to seamlessly integrate and manage data, operating non-stop all year round. These centers are generally categorized into hosting areas, equipment areas, and network operation centers, and more specifically, they comprise ICT equipment (such as servers, storage, and network equipment), infrastructure (UPS/battery, temperature and humidity control, generators), and Data Center Management System (DCMS). As data traffic has surged due to the widespread shift to a contactless culture in the wake of COVID-19, and as the cloud market continues to grow, the number of data centers has dramatically increased. Kakao acknowledges that any delay in developing or introducing eco-friendly technologies in its data centers could risk increasing our emissions, potentially leading to a decrease in brand value or reputational risk, and has categorized this as a climate change risk factor.</p> <p>As a countermeasure, Kakao has plans to construct its new Ansan data center as a green data center by leveraging natural conditions and incorporating various energy-saving technologies. It will be fitted with renewable energy infrastructure, high-efficiency equipment to enhance cooling efficiency, and a system for recycling rainwater, graywater, and waste heat. This eco-friendly design is projected to reduce total energy consumption by 30% compared to existing data centers, saving approximately KRW 3.1 billion in energy costs annually. The new data center is also expected to lower electricity consumption by 32 GWh per year, thus reducing carbon emissions by 14%.</p>
Legal	Not relevant, included	<p>Currently, Kakao is not eligible for allocation under the ETS, as stated in the Act on The Allocation And Trading of Greenhouse-gas Emission Permits. Nonetheless, we are committed to annually measuring and managing our GHG emissions in line with our 2040 Net zero goal, and we gauge our progress towards this target based on these emissions. We are executing GHG emission reduction activities across our business operations to achieve this aim by harnessing renewable energy, transitioning to electric vehicles, and laying a solid foundation for responding to climate change in our supply chain.</p> <p>Continually, we keep an eye on domestic and global GHG regulations and trends, and if we ascertain that they could influence Kakao, we advance in arranging and managing responses systematically. Consequently, we actively assess the course and direction of governmental policies relevant to applicable ETSs in the short to</p>



		<p>medium term and persistently monitor the emission rights market. Furthermore, we are scrutinizing internal and external reduction projects from various standpoints, analyzing and managing the risks of paid allocation. In this vein, Kakao identifies potential risks from regulations ahead of time, integrating them as evaluation factors, and operates by managing and reducing these risks systematically in advance. As a result, we have not encountered any violations of laws and regulations thus far, and we anticipate no violations in the future due to our systematic response strategy.</p>
Market	Relevant, always included	<p><b>- Increased Power Usage and Rising Electricity Prices</b>          Kakao, mobile and internet company, inherently uses electricity for approximately 99% of its total energy consumption. Given the nature of the internet industry, the capacity and processing power of servers, data centers, network equipment, and more are constantly being amplified. Simultaneously, customer demand is escalating, leading to a steady increase in internet traffic. Moreover, to forestall incidents such as data center server fires and ensure the delivery of stable and uninterrupted services, we are adopting dual- and triple-homing operations. This method allows us to configure servers and network equipment in data centers with double or triple redundancy, inevitably leading to increased power consumption.</p> <p>The pricing of domestic electricity mirrors the surge in international fuel prices along with climate and environmental costs. The introduction of the fuel adjustment scheme allows periodic adjustments in electricity bills based on changes in the fuel cost used for electricity generation. Consequently, the domestic base fuel cost has escalated by 19.4 KRW/kWh compared to 2022, and with the ongoing rise in fuel prices, we anticipate that increases in electricity prices will persist.</p> <p>Furthermore, the expenses incurred by KEPCO to mitigate environmental pollution impacts, including GHG emissions, are passed on to electricity consumers via the Climate Change and Environmental Charge. This charge encompasses costs related to fulfilling the Renewable Portfolio Standards (RPS) obligation, implementing the ETS for power generation companies, and purchasing emission credits. The Climate Change and Environmental Charge is anticipated to continue to rise as the government's initiatives impose a stricter reduction burden on the power generation industry.</p> <p>In light of these factors, the projected increase in Kakao's electricity consumption and electricity rates has been identified as a risk that could adversely impact our finances. Accordingly, we are managing the escalation in electricity usage and rate increases as a climate change risk.</p>

		<p>In response, Kakao is undertaking various activities to curb electricity consumption internally. Specifically, we are incorporating eco-friendly considerations into our service provision. In 2022, we implemented smartphone power-saving modes and introduced Kakao Dark Mode to reduce the power consumption of digital devices.</p>
<p>Reputation</p>	<p>Relevant, always included</p>	<p>- Risk of Investor Capital Return Due to Lack of Action on Climate Change</p> <p>Kakao recognizes environmental concerns, including climate change, as a significant issue for key stakeholders such as investors and customers and a critical determinant of corporate value. Indeed, Kakao has received specific requests from diverse stakeholders to address the climate crisis, and in response, we've pledged to establish a '2040 Net Zero' environmental management goal and intensify efforts to cut emissions. Aligning with global trends, we've also joined RE100, committing to converting 60% of our electricity usage to renewable energy by 2030 and 100% by 2040.</p> <p>However, given the currently limited policy support for renewable energy procurement in Korea and the immature market conditions, it is anticipated that Kakao will face numerous obstacles in meeting its renewable power procurement targets (60% by 2030 and 100% by 2040). As ESG has become an essential indicator for corporate investment, falling short of our RE100 and Net Zero goals could negatively impact investor assessments of our company, leading to a risk of capital recall. Capital recall by investors could result in a fall in our stock price, thus impairing our enterprise value.</p> <p>As of 2022, we have 445,410,387 outstanding shares. If we fail to meet our RE100 and 2040 Net Zero goals, there exists a risk of capital recall and stock price decline due to unfavorable corporate valuation. For instance, assuming a 10% stock price decline due to investor capital withdrawal, we could face a loss of KRW 2.387 trillion, calculated at our stock price of KRW 53,600 as of December 31, 2022.</p> <p>※ Estimated damage amount = Total Kakao issued shares × Stock price as of December 31, 2022 × 10%          = 445,410,387 × KRW 53,600 × 10% = KRW 2,387,399,674,320</p> <p>To manage this risk, Kakao is undertaking various measures. Kakao has partnered with 60 Hertz, an energy IT social venture, to transition the electricity used in our Jeju office to renewable energy. Together, we're purchasing Renewable Energy Certificates (RECs) produced by citizen cooperatives across the nation that belong to the National</p>

		Citizen Development Cooperative Association to achieve RE100 for our Jeju office.
Acute physical	Relevant, always included	<p>- Extreme Weather Events Due to Climate Change (typhoons/heavy rainfall)</p> <p>Due to climate change, unusual weather events such as heavy rainfall, typhoons, and droughts are becoming more frequent. This shift in weather patterns escalates the physical risks to our facilities, including our data centers.</p> <p>For instance, if typhoons or heavy rains damage our facilities, the disruption of services could significantly impact not just our customers but also the wider society. Floods triggered by typhoons and heavy rains can provoke power failures in data centers, leading to interruptions in service. Typhoons, in particular, can damage the power supply grid, which could, in turn, affect our servers and network equipment. Power supply interruptions could lead to data centers or servers ceasing operation, resulting in service interruptions or limitations. Moreover, typhoons could damage our infrastructure, potentially leading to infrastructure repair costs. Network connectivity and reliability may be compromised depending on the extent of damage to our infrastructure.</p> <p>Consequently, Kakao perceives extreme weather events, projected to increase due to climate change, as a short-term physical risk. To mitigate this risk, Kakao continuously monitors the external environment and develops internal guidelines and strategies to respond to potential shifts in the external environment.</p>
Chronic physical	Relevant, always included	<p>- Extreme Weather Events (drought/wildfire) Due to Rising Temperatures</p> <p>Due to climate change, abnormal weather patterns such as heavy rains, typhoons, and droughts are becoming more frequent, and temperatures are rising. This increase in temperature, linked to climate change, is viewed as a long-term physical risk for data center operations. A data center, an energy-intensive facility providing servers, network lines, and more to accommodate a company's vast data storage needs, operates around the clock, 365 days a year. It primarily relies on electricity, with cooling systems consuming 30 to 50 percent of the total energy.</p> <p>Indeed, Korea is predicted to witness a temperature rise of 2.6°C in a low-emission scenario (SSP1-2.6) and 7.0°C in a high-emission scenario (SSP5-8.5) during the latter half of the 21st century compared to current conditions. This anticipated temperature increase could</p>

		<p>impose higher operating costs on data centers by escalating energy consumption for cooling. Recognizing this, Kakao is attentive to the risks of long-term physical environmental changes, such as rising temperatures, droughts, and wildfires attributable to climate change.</p> <p>As a response, Kakao is developing its own Ansan Data Center, striving to embody its identity as an eco-friendly data center through an integrated design that leverages natural conditions and a variety of energy-saving technologies. The plan includes building a renewable energy infrastructure, using high-efficiency equipment to enhance cooling power efficiency, and implementing a system to recycle rainwater, graywater, and waste heat. We also intend to design and construct data centers based on a Power Usage Effectiveness (PUE) of 1.3 or less via energy-saving technologies. Through these energy efficiency enhancements, we anticipate a reduction in energy usage and carbon emissions by around 15% compared to existing leased data centers.</p>
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## C2.3

**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

No

## C2.3b

**(C2.3b) Why do you not consider your organization to be exposed to climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

	Primary reason	Please explain
Row 1	Risks exist, but none with potential to have a substantive financial or strategic impact on business	Each year, Kakao's ESG Business Division, responsible for environmental management, periodically identifies climate change-related risks and opportunities. These are gleaned from various facets such as regulatory, technological, market, reputational, and short- and long-term physical environmental changes. Kakao initially identifies ESG core issues based on a double materiality assessment matrix defined as ① scale of impact × ② scope of stakeholders. For these identified ESG core issues, we evaluate risks based on the criteria defined as ① probability of occurrence × ② impact. As an outcome of this assessment, our climate change risks encompass adherence to emission reporting and reduction per carbon regulations, disclosure of environmental information adhering to the guidelines of ISSB, GEC, and more, transitioning to renewable energy, potential delays in the development and introduction of environmentally friendly technologies, damage to

		<p>infrastructure and increased operational costs (cooling) due to extreme weather, and infrastructure damage due to sea level rise. For these identified risks, Kakao conducted an impact assessment with the consideration of materiality assessment criteria of ①probability of occurrence × ②impact. For instance, the impact on brand value and reputational risk, expected due to delays in the development and introduction of eco-friendly technologies, was evaluated to have a medium impact over short, medium, and long-term horizons. All other risks were assessed as having a medium or low impact with a score of 5 or less. However, given that the requirements for climate change issues are continuously intensifying, the assessment has room for change. Thus, Kakao identifies and evaluates climate change risks in line with the climate change risk assessment process annually. Should a significant risk be identified, the CEO or the ESG Committee makes a decision, and we aim to mitigate the risk through systematic responses and manage the risk so it does not become significant through continuous monitoring. Kakao possesses a response process to systematically address risks, but no significant risks were identified due to the 2022 materiality assessment. However, given the likelihood of future changes in the materiality and impact of climate change issues, we plan to conduct annual risk assessments. Should any substantial risks be identified in the future, we will respond systematically in line with our material risk management system.</p>
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## C2.4

**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

No

## C2.4b

**(C2.4b) Why do you not consider your organization to have climate-related opportunities?**

	Primary reason	Please explain
Row 1	Opportunities exist, but none with potential to have a substantive financial or strategic impact on business	Each year, Kakao's ESG Business Division, responsible for environmental management, periodically identifies climate change-related risks and opportunities. These are gleaned from various facets such as regulatory, technological, market, reputational, and both short- and long-term physical environmental changes. Kakao initially identifies ESG core issues based on a double materiality assessment matrix defined as ①scale of impact × ②scope of stakeholders. For these identified ESG core issues, we evaluate opportunities based on the criteria

		<p>defined as ①probability of occurrence × ②impact. Upon concluding our evaluation, Our opportunities related to climate change include enhancing energy efficiency by incorporating high-efficiency equipment and embedding eco-friendly services within the platform. Kakao conducted an impact assessment for the identified opportunities, considering the materiality assessment parameters of ①likelihood of occurrence X ②impact. For instance, the potential for cost savings via reduced operational costs by improving energy efficiency through the introduction of high-efficiency equipment was deemed to have a medium impact across the short, medium, and long-term timeframes. All other opportunities were rated as having a medium or low impact with a score of 5 or less. Nevertheless, the demands relating to climate change issues continue to rise, implying potential adjustments in these assessments. Thus, we consistently identify and evaluate climate change opportunities annually or whenever a material climate change-related issue emerges, shaping our responses based on the assessment outcomes. If a significant opportunity is identified, it becomes subject to decisions by the CEO or the ESG Committee, and will be managed through ongoing monitoring to maximize the positive effect on Kakao, depending on the opportunity factors, via a systematic response. As such, Kakao maintains a response process to systematically address opportunities, and no material opportunities were pinpointed during the 2022 materiality assessment. However, as the materiality and impact of climate change issues are likely to evolve in the future, we plan to conduct an annual assessment on opportunity factors, acknowledging that material opportunities may indeed be identified in the future. Should material opportunities be identified down the line, we will evolve our management structure to ensure that opportunities are created and effectively utilized.</p>
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## C3. Business Strategy

### C3.1

**(C3.1) Does your organization’s strategy include a climate transition plan that aligns with a 1.5°C world?**

Row 1

**Climate transition plan**

Yes, we have a climate transition plan which aligns with a 1.5°C world

**Publicly available climate transition plan**

Yes

**Mechanism by which feedback is collected from shareholders on your climate transition plan**

We have a different feedback mechanism in place

**Description of feedback mechanism**

In 2022, Kakao set forth the 2040 Net Zero goals to achieve net zero emissions of GHG Scope 1 and 2 by 2040. To achieve this, we created the 2040 Net Zero Roadmap, which details our plan to implement a variety of initiatives, such as transitioning to electric vehicles, amplifying the use of renewable energy, and managing carbon emissions throughout our supply chain. This comprehensive approach addresses carbon emissions not just from our operations but also from the entire value chain. To facilitate shareholder feedback regarding our climate transition strategies and plans, we organize events, including Non-Deal Roadshows (NDRs), earnings conference calls, analyst days, and one-on-one meetings.


**Frequency of feedback collection**

More frequently than annually

**Attach any relevant documents which detail your climate transition plan (optional)**

ESGReport2022\_EN p.28, [카카오]사업보고서(2023.03.20) p.45

 ESGReport2022\_EN.pdf

 [카카오]사업보고서(2023.03.20).pdf

### C3.2

**(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?**

Use of climate-related scenario analysis to inform strategy	
Row 1	Yes, qualitative and quantitative

### C3.2a

**(C3.2a) Provide details of your organization’s use of climate-related scenario analysis.**

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios RCP 8.5	Company-wide		To address climate risk, we undertook a scenario analysis, factoring in physical aspects. We evaluated the impact of each RCP scenario (RCP 4.5 and RCP 8.5) on Kakao, considering both medium-term (to 2030) and long-term (to 2040) climate change scenarios. These timelines align with our mid- and long-term



		<p>goals. The organization boundary for climate change scenario analysis encompasses all our business sites, while the operation boundary includes Scope 1, 2, and 3.</p> <p>We determined the degree of exposure to climate change and climate-related disasters at Kakao's key business sites. A long list of potential physical risks was compiled by type of disaster, and then a short list of key risks highly relevant to Kakao was identified and highlighted. For these major risks, we conducted a vulnerability assessment of Kakao, estimating financial damages under prospective climate and financial scenarios.</p> <p>Kakao identified a total of 36 physical risks considering four types of disasters (heat wave, heavy rain, cold wave, and heavy snow) and nine types of damage (people, structural facilities, instrumental facilities, raw materials, finished products, transportation, sales, management, and production processes). Through discussions with relevant departments, we selected eight major risks for further analysis. These were: damage to production processes, structural facilities, and transportation due to heat waves; structural facility damage due to cold waves; damage to structural facilities and transportation due to heavy rain; and damage to people and transportation due to heavy snowfall. We evaluated the vulnerability of each type of disaster based on our internal disaster response manual, establishing risk weights accordingly. Using this understanding of the primary physical risks and related vulnerabilities pertinent to Kakao, we projected potential damages for each physical risk under future climate change scenarios and Kakao's financial growth scenarios.</p>
<p>Transition scenarios IEA NZE 2050</p>	<p>Company-wide</p>	<p>Kakao performed a scenario analysis using IEA NZE 2050 to discern climate risks and assess risk levels about the transition. The scenarios hinged on the assumptions of national carbon neutrality and Kakao's attainment of net zero by 2040. In this scenario analysis, mid- and long-term reduction targets were set for 2030 and 2040, respectively, aligning with the company's defined mid- and long-term goals. For the climate change scenario analysis, the organization</p>



			<p>boundary encompasses all business sites, while the operation boundary includes Scope 1, 2, and 3.</p> <p>Regarding the transition scenario, we considered the IEA NZE 2050 scenario. A risk-based review was conducted to ascertain the extent of GHG reduction required for us to comply with future climate change scenarios, the budget needed for such reductions, and whether our mitigation technologies are being developed and implemented appropriately.</p>
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## C3.2b

**(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.**

### Row 1

#### Focal questions

For Gyeonggi Province, where Kakao's primary business sites reside, the analysis of temperature rise from 2022 to 2100 under RCP 4.5 and RCP 8.5 indicates a consistent increase in the average temperature and heatwave days, a slight uptick in heavy rain days, and a decline in cold wave and heavy snow days. Under the RCP 8.5 scenario, the number of heatwave days is projected to grow by about eight days per decade, presuming the current high emissions trend persists. In terms of days, the count of heatwave days is anticipated to rise to an average of 19 days by the 2030s, an average of 29 days by the 2040s, approximately double from the present level of around 15 days, and to an average of 71 days by the 2090s. Under the RCP 8.5 scenario, escalating temperatures and a rise in the frequency of heatwave days were projected to prompt a surge in summer electricity consumption. It is further anticipated that the resulting heightened demand for utility power will escalate liabilities due to financial losses, such as those linked to network equipment failures and power outages. Damages from heatwaves were projected to be negligible, at less than 2% of revenue by 2040, but would persistently increase as climate change and the frequency of heatwaves escalated, reaching approximately 7% of revenue by the 2090s. Consequently, given the significant medium- to long-term impact of heatwaves, Kakao needs to acknowledge and systematically manage the surge in energy usage and potential damage to infrastructural facilities like data centers caused by heatwaves as primary concerns.

#### Results of the climate-related scenario analysis with respect to the focal questions

Kakao employed the CRAS analysis tool to scrutinize the RCP 8.5 scenario, concluding that it would significantly affect revenue in the long run. By comparing the RCP 8.5 scenario with the economic scenario, we estimated the extent of damage brought about

by the heat wave, which will have the most substantial impact on Kakao. The ratio of damage to revenue, projected per decade until 2090, is as follows:

- 2021 to 2030: 1.24%
- 2031 to 2040: 1.75%
- 2041 to 2050: 2.79%
- 2051 to 2060: 3.49%
- 2061 to 2070: 3.77%
- 2071 to 2080: 4.63%
- 2081 to 2090: 5.52%
- 2091 to 2100: 6.69%

While the impact of heatwaves is projected to be minimal as a percentage of revenue within the next 20 years, it will continue to rise with increasing climate change and the frequency of heatwaves, reaching about 7% of revenue in the 2090s.

This damage caused by rising temperatures directly impacts Kakao, and if viewed as a liability, the proportion of debt is destined to rise continuously. Therefore, to minimize this risk, we've examined various potential risks in the data center. As a mobile and internet company, around 99% of Kakao's total energy consumption is dedicated to electricity, attributed to the nature of its industry. Data centers' capacity and processing abilities are consistently growing to provide diverse services to users and process large volumes of data. Especially data centers consume more electricity for cooling when temperatures rise to sustain indoor temperatures, potentially leading to increased emissions. To counter this, Kakao has reviewed reduction technologies applicable to data centers. After the Ansan Data Center is completed, we will construct a renewable energy infrastructure and implement high-efficiency energy equipment to enhance cooling power efficiency. Additionally, we plan to introduce a system to recycle rainwater, graywater, and waste heat. We are preparing to design and construct the data center based on a PUE of 1.3 or less through energy-saving technologies. Kakao expects to reduce energy usage and carbon emissions by about 15% compared to existing leased data centers, thus mitigating the risk of electricity usage. Moreover, the electricity usage reduction due to Kakao's efforts will be reflected in the Climate Change and Environmental Charge of electricity bills, which should help minimize the increase in electricity bills. Consequently, a significant reduction in Kakao's financial risk is anticipated as a result of decreasing power consumption and minimizing the escalation of electricity rates.

### C3.3

**(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.**

Have climate-related risks and opportunities	Description of influence
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	influenced your strategy in this area?	
Products and services	Yes	<p><b>1. Impact on Business</b>                      With the intensification of regulations related to climate change, eco-friendly products, and services have emerged as significant factors in both risks and opportunities associated with climate change. From the risk perspective, it was determined that brand value might diminish or expand as a reputational risk for Kakao owing to delays in developing and implementing eco-friendly technologies and new industries that promote environmental friendliness. From the opportunity viewpoint, it was analyzed that costs could be curtailed through improved energy efficiency by introducing high-efficiency equipment, thereby reducing operational expenses such as electricity costs. Furthermore, our reputation could experience a positive shift or generate new sales by introducing eco-friendly services on our platform. As such, Kakao is formulating plans to further develop and manage products and services that incorporate eco-friendly elements and is committed to offering a variety of products and services that consider eco-friendly factors.</p> <p><b>2. Decision-Making Cases</b>                      Kakao acknowledges the rising demand for eco-friendly products and services as consumer environmental consciousness grows and is introducing a variety of products and services that incorporate eco-friendly components. A notable example is Kakao's introduction of eco-friendly products that can substitute for disposable items in the Kakao Friends products. We are curtailing plastic usage, employing paper boxes with high recycling rates, and using environmentally friendly packaging materials such as boxes, cushioning materials, and tape for products. Moreover, in 2022, Kakao Pay supplanted 153.34 million documents with e-documents and mobile bills, reducing paper usage and decreasing GHG emissions.</p>
Supply chain and/or value chain	Yes	<p><b>1. Impact on Business</b>                      Kakao understands the profound implications of climate change and has set mid to long-term objectives in alignment with global efforts to address this challenge. Aiming for a 2040 Net Zero target, we are intensifying our initiatives to mitigate environmental impacts by cutting carbon emissions across both our direct operations and the broader value chain. To achieve this, we've instituted standards and protocols for sustainable supply chain management, actively</p>

		<p>engaging our suppliers. Furthermore, we champion eco-friendly initiatives through Kakao services and foster environmentally-conscious activities amongst our users, partners, and the wider community. This collective effort ensures that our Krews, partners, users, and society can all play their part in combating climate change.</p> <p><b>2. Decision-Making Cases</b>                  In line with the 2040 Net Zero objective, Kakao strives to decrease carbon emissions from its core operations and value chain. As an initial measure to oversee carbon emissions in the supply chain, Kakao identified Scope 3 emissions across all 15 categories in 2022, pinpointing GHG emissions that are indirectly produced within the value chain, and subsequently disclosed data for the 13 categories relevant to Kakao. To effectively control these emissions, Kakao aims to refine its Scope 3 emission management system. Furthermore, to permeate ESG consciousness throughout the supply chain, Kakao is securing commitments from suppliers to adhere to the Supplier Code of Conduct. Simultaneously, we are advocating for customer-engaged activities that curtail GHG emissions. In 2022, under the 'Green Digital' environmental campaign, Kakao initiated three actions to minimize digital carbon footprints in everyday life. We successfully curtailed carbon emissions through Eco Mode, which reduces the spam trash retention period on Daum/Kakao Mail from 15 days to 7. Additionally, energy consumption was minimized using smartphone power-saving features and Kakao Talk's Dark Mode. Finally, we slashed paper consumption and resultant GHG emissions by transitioning from paper bills to mobile bills for Kakao Pay and electronic document storage.</p>
Investment in R&D	Yes	<p><b>1. Impact on Business</b>                  As Korea's foremost mobile and internet company, Kakao's industry nature results in electricity accounting for approximately 99% of its total energy consumption. The continuous expansion in the capacity and processing power of servers, data centers, and network equipment to meet user needs and process large amounts of data has led to a steady increase in internet traffic. With international fuel prices and Climate Change and Environmental Charges causing domestic electricity bills to rise, Kakao is proactively working on the development and investment in various reduction technologies to be incorporated in its data centers to mitigate potential risks.</p>

		<p><b>2. Decision-Making Cases</b>  Regarding the construction of the Ansan Data Center, Kakao's ambition is to make it an eco-friendly data center by utilizing natural conditions and applying assorted energy-saving technologies. The plans include establishing a renewable energy infrastructure, using high-efficiency energy equipment to augment cooling power efficiency, and introducing a system to recycle rainwater, graywater, and waste heat. Moreover, Kakao is preparing to design and construct data centers with a Power Usage Effectiveness (PUE) of 1.3 or less by utilizing energy-saving technologies. Through these efforts, Kakao expects to reduce energy usage and carbon emissions by approximately 15% compared to existing leased data centers.</p> <p>Additionally, Kakao Enterprises is undertaking continuous R&amp;D efforts on hardware and software to offer tailored solutions for data centers that boost the efficiency of cloud infrastructure and services. In February 2022, in collaboration with Xilinx, we launched a Field Programmable Gate Arrays (FPGA)-based SmartNIC. FPGAs enable users to directly customize digital circuits for specific applications, merging the unparalleled flexibility of a Central Processing Unit (CPU) with the speedy processing power of an Application-Specific Integrated Circuit (ASIC). This combination gives users the flexibility to modify the internal logic of software and achieve higher performance. With FPGA-based SmartNICs, the Kakao i Cloud Server supports software reconfiguration or provisioning for performance enhancement without necessitating users to alter the hardware.</p>
Operations	Yes	<p><b>1. Impact on Business</b>  With the government's declaration for 2050 Carbon Neutrality, there's a heightened demand for reducing GHGs. Kakao acknowledges the escalating probability and impact of climate change risks on its operations and integrates reduction technologies into its business strategy to address these risks on a company-wide scale. As a mobile and internet company, internet traffic is inevitably on the rise due to the surge in customer demand. Accordingly, our facilities' capacity and processing power, like servers, data centers, and network equipment, need to increase to offer diverse services and handle large amounts of data. To address this, we are working on introducing varied GHG reduction activities that can be applied at our operational sites.</p>

		<p><b>2. Decision-Making Cases</b></p> <p>Kakao is committed to reducing internal environmental impacts through diverse strategies. We are constantly striving to enhance energy efficiency to decrease the environmental impact of our energy-intensive data centers. While Kakao currently operates from a leased data center, we will transition to our eco-friendly data center starting in January 2024. The Ansan data center will feature awnings with superior insulation performance and a high-performance double facade system and will optimize airflow by implementing the Hot Aisle and UT Containment systems. We are also incorporating a high-efficiency pre-cooling chiller system to minimize energy requirements through energy-conserving construction. Kakao has implemented systems to recycle rainwater and graywater and recover waste heat, and to increase the energy efficiency of the computer room, we have segregated the high temperature emitted by the servers from the cold air provided by the chiller unit, thus enhancing the unit's efficiency. Additionally, we have applied a smart temperature management system in the computer room that monitors real-time temperature changes to maintain the optimal temperature and humidity.</p> <p>Furthermore, we are introducing various facilities to lessen our environmental impact in new leased data centers that we will begin using in the second quarter of 2023. These include renewable energy generation equipment, using an eco-friendly fire extinguishant with the lowest environmental destruction index among existing fire extinguishing agents, and installing lighting brightness control functions.</p>
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### C3.4

**(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

	Financial planning elements that have been influenced	Description of influence
Row 1	Direct costs	As climate change ascends as a primary global concern, the significance of corporate action toward this issue is also gaining traction. Accordingly, Kakao has declared 2040 Net Zero and committed to RE100 to actualize this aim. In its stride toward environmental goals, Kakao is undertaking

	<p>diverse activities. Given the nature of Kakao's business, emissions are escalating, and with the impending inclusion of an ETS, the direct cost burden of buying emission rights and introducing reduction measures is likely to intensify. Notably, the cost of procuring emission rights is categorized as an emissions liability in accounting, potentially leading to financial strain. To combat this, Kakao is rolling out various reduction activities and widening the utilization of renewable energy.</p> <p>Our Ansan Data Center, operational from January 2024, embodies an eco-friendly integrated design. This self-built eco-friendly data center capitalizes on natural conditions and integrates diverse energy-saving technologies. During the construction phase of the Ansan Data Center, Kakao introduced energy-conserving architecture, energy-efficiency technologies, and eco-friendly energy technologies, planning a comprehensive environmental investment budget of KRW 24,546 million. In 2023, KRW 18.54 billion will be allocated to facilities for improving energy efficiency, KRW 20 million to waste heat recovery and utilization, and KRW 6.472 billion to renewable energy facilities.</p> <p>Long-term procurement of renewable energy is set to increase, given Kakao's RE100 declaration requiring 100% conversion of its electricity to renewable energy by 2040. Consequently, aside from buying green premiums, it is essential to broaden the application of various renewable power procurement options like PPAs and RECs. This inevitably means direct costs will increase further. The upsurge in procurement costs to meet RE100 could likely reflect in accounting, exerting pressure on corporate finances.</p> <p>To realize RE100, Kakao is working towards increasing renewable energy usage by purchasing RECs, participating in green premiums, and procuring PPAs. In 2021, Kakao bought 2,978 MWh of green premium, and in 2022, it procured 1,900 MWh of green premium through a collective of 17 civic unions. Kakao aims to extend its renewable energy supply to 4,000 MWh in 2023.</p>
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### C3.5

**(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?**

	Identification of spending/revenue that is aligned with your organization's climate transition
Row 1	Yes, we identify alignment with our climate transition plan



## C3.5a

**(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's climate transition.**

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**Financial Metric**

CAPEX

**Type of alignment being reported for this financial metric**

Alignment with our climate transition plan

**Taxonomy under which information is being reported**

**Objective under which alignment is being reported**

**Amount of selected financial metric that is aligned in the reporting year (unit currency as selected in C0.4)**

198,700,000,000

**Percentage share of selected financial metric aligned in the reporting year (%)**

40

**Percentage share of selected financial metric planned to align in 2025 (%)**

32

**Percentage share of selected financial metric planned to align in 2030 (%)**

31

**Describe the methodology used to identify spending/revenue that is aligned**

Kakao has set a target based on SBTi and committed to achieving net-zero GHG emissions on a consolidated basis by 2040. This goal acts as a transitional plan in alignment with the 1.5°C scenario. To realize this goal, we have formulated company-wide principles for environmental issue management and response to the climate crisis, committing to engage in various eco-friendly activities to promote a low-carbon transition. Given the nature of our business, indirect emissions from electricity use comprise over 99% of our total emissions. Alongside our 2040 Net Zero declaration, Kakao has joined RE100, pledging to convert 100% of our electricity consumption to renewable energy by 2040. Additionally, we are persistently working to improve energy efficiency in our energy-intensive data centers to reduce emissions and environmental impact

In this regard, Kakao has adopted "CAPEX" as our standard for financial indicators, aligning the investment costs for energy efficiency improvement facilities at our data centers with our climate change plan's direction. In 2022, CAPEX was recorded at KRW 500,459,220,184. Given the unpredictable nature of future CAPEX due to uncertain



economic conditions, technological advancements, policy shifts, and external factors, we have estimated our CAPEX for 2025 and 2030 by deriving a linear formula based on our CAPEX for the last three years (2020 - 2022).

In 2022, Kakao invested KRW 198,700,000,000 in data center facilities. Our Ansan data center, designed with an eco-conscious mindset, integrates renewable energy infrastructure, employs high-efficiency energy facilities for improved cooling power efficiency, and recycles rainwater, graywater, and waste heat. Energy efficiency enhancements are projected to decrease energy usage and carbon emissions by approximately 15% compared to existing leased data centers, culminating in an annual reduction of roughly 30 GWh. We're also introducing an array of facilities to augment energy efficiency and lessen environmental impact at leased data centers other than our own. Based on these investment costs calculations, we anticipate the cost to achieve Net Zero by 2030 will be around KRW 424,900,000,000.

The new Ansan Data Center construction in 2022 led to a significant, albeit temporary, surge in CAPEX investment costs, aligning with our climate change plan. Looking ahead, Kakao aims to invest in facilities that will allow for the efficient operation of its data centers and the expansion of eco-friendly data centers, estimated to account for 31% of the total CAPEX by 2030. Additionally, we're maintaining close tabs on pertinent government policies and market shifts and will persist in advancing implementation costs consistent with our climate transition strategy.

## C4. Targets and performance

### C4.1

**(C4.1) Did you have an emissions target that was active in the reporting year?**

Absolute target

#### C4.1a

**(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.**

---

**Target reference number**

Abs 1

**Is this a science-based target?**

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

**Target ambition**

1.5°C aligned

**Year target was set**

2022

**Target coverage**

Company-wide

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Market-based

**Scope 3 category(ies)**

**Base year**

2021

**Base year Scope 1 emissions covered by target (metric tons CO2e)**

233

**Base year Scope 2 emissions covered by target (metric tons CO2e)**

85,087

**Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year total Scope 3 emissions covered by target (metric tons CO<sub>2</sub>e)**

**Total base year emissions covered by target in all selected Scopes (metric tons CO<sub>2</sub>e)**

85,320

**Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1**

100

**Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2**

100

**Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO<sub>2</sub>e)**

**Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)**

**Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes**

61

**Target year**

2030

**Targeted reduction from base year (%)**

40

**Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]**

51,192

**Scope 1 emissions in reporting year covered by target (metric tons CO2e)**

248

**Scope 2 emissions in reporting year covered by target (metric tons CO2e)**

67,143

**Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)**

**Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)**

**Total emissions in reporting year covered by target in all selected scopes (metric tons CO<sub>2</sub>e)**

67,391

**Does this target cover any land-related emissions?**

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

**% of target achieved relative to base year [auto-calculated]**

52.534575715

**Target status in reporting year**

Underway

**Please explain target coverage and identify any exclusions**

Scope 1 and 2 / We have set Net Zero targets for our domestic and international entities and disclose our mid-term targets for setting Net Zero targets.

**Plan for achieving target, and progress made to the end of the reporting year**

Kakao has established a Net Zero roadmap to achieve carbon neutrality. Accordingly, we have established a reduction strategy by scope to achieve our mid-term reduction targets.

For Scope 1, we identified that most of our emissions were generated by vehicle fuel, and we plan to reduce GHG emissions by switching to electric vehicles. For Scope 2, we plan to convert 60% of our total electricity usage to eco-friendly energy by 2030. Accordingly, we switched to 100% renewable energy usage in our Jeju office in 2022 and plan to gradually expand the amount of renewable energy supply. We have also established a reduction plan for each scope and plan to actively implement it to achieve a 40% reduction in emissions by 2030 compared to 2021.

**List the emissions reduction initiatives which contributed most to achieving this target**

---

**Target reference number**

Abs 2

**Is this a science-based target?**

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

**Target ambition**

1.5°C aligned

**Year target was set**

2022

**Target coverage**

Company-wide



**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Market-based

**Scope 3 category(ies)**

**Base year**

2021

**Base year Scope 1 emissions covered by target (metric tons CO<sub>2</sub>e)**

233

**Base year Scope 2 emissions covered by target (metric tons CO<sub>2</sub>e)**

85,087

**Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)**

**Base year total Scope 3 emissions covered by target (metric tons CO2e)**

**Total base year emissions covered by target in all selected Scopes (metric tons CO2e)**

85,320

**Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1**

100

**Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2**

100

**Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO<sub>2</sub>e)**

**Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)**

**Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes**

61

**Target year**

2040

**Targeted reduction from base year (%)**

100

**Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]**

0

**Scope 1 emissions in reporting year covered by target (metric tons CO2e)**

248

**Scope 2 emissions in reporting year covered by target (metric tons CO2e)**

67,143

**Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)**

**Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)**

**Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)**

67,391

**Does this target cover any land-related emissions?**

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

**% of target achieved relative to base year [auto-calculated]**

21.013830286

**Target status in reporting year**

Underway

**Please explain target coverage and identify any exclusions**

Scope 1 and 2 / We have set Net Zero targets for our domestic and international entities and disclose our long-term targets for setting Net Zero targets.

**Plan for achieving target, and progress made to the end of the reporting year**

Kakao has set a Net Zero goal for 2040. The company plans to achieve carbon neutrality by switching to electric vehicles and converting 100% of its electricity to renewable energy. For reference, 99% of Kakao's greenhouse gas emissions are generated by electricity. In the first half of 2023, we joined RE100, a global renewable energy initiative, and plan to achieve both RE100 and our Net Zero goal.

**List the emissions reduction initiatives which contributed most to achieving this target**

---

**Target reference number**

Abs 3

**Is this a science-based target?**

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

**Target ambition**

Well-below 2°C aligned

**Year target was set**

2022

**Target coverage**

Company-wide

**Scope(s)**

Scope 3

**Scope 2 accounting method**

**Scope 3 category(ies)**

Category 2: Capital goods

Category 15: Investments

**Base year**

2021

**Base year Scope 1 emissions covered by target (metric tons CO2e)**

**Base year Scope 2 emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)**

47,898

**Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)**



**Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)**

6,011

**Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)**

**Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)**

**Base year total Scope 3 emissions covered by target (metric tons CO2e)**

53,908

**Total base year emissions covered by target in all selected Scopes (metric tons CO2e)**

53,908

**Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1**

**Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2**

**Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)**

**Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO<sub>2</sub>e)**

69

**Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO<sub>2</sub>e)**

**Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)**

**Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)**

**Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)**

**Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)**

**Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)**

9

**Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)**

**Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)**

**Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)**

78

**Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes**

39

**Target year**

2030

**Targeted reduction from base year (%)**

17

**Total emissions in target year covered by target in all selected Scopes (metric tons CO<sub>2</sub>e) [auto-calculated]**

44,743.64

**Scope 1 emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 2 emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

49,508

**Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO<sub>2</sub>e)**

**Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)**

7,165

**Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)**

**Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)**

56,673

**Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)**

56,673

**Does this target cover any land-related emissions?**

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

**% of target achieved relative to base year [auto-calculated]**

-30.1712285419

**Target status in reporting year**

Underway

**Please explain target coverage and identify any exclusions**

Kakao's calculation was conducted for Scope 3 categories, and a total of 13 categories were calculated. Among them, two Scope 3 categories (categories 2 and 15), which account for 78% of total emissions, were selected as targets.

**Plan for achieving target, and progress made to the end of the reporting year**

Kakao plans to establish and upgrade its supplier emissions management system to achieve its Scope 3 GHG reduction targets. We plan to actively participate in Scope3 reduction by identifying the status of supply chain GHG emissions and establishing a value chain carbon emission management system.

**List the emissions reduction initiatives which contributed most to achieving this target**

## C4.2

**(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

Net-zero target(s)

## C4.2c

**(C4.2c) Provide details of your net-zero target(s).**

---

**Target reference number**

NZ1

**Target coverage**

Company-wide

**Absolute/intensity emission target(s) linked to this net-zero target**

Abs1

Abs2

**Target year for achieving net zero**

2040

**Is this a science-based target?**

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

**Please explain target coverage and identify any exclusions**

Scope 1 and 2 / We have set Net Zero targets for our domestic and international entities

**Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?**

Yes

**Planned milestones and/or near-term investments for neutralization at target year**

To achieve carbon neutrality, we will first improve the accuracy of our emissions. We will enhance the standards for calculating and aggregating greenhouse gases and systematize the emissions generated in the field so that they can be monitored and managed. We also plan to maximize direct reductions and achieve carbon neutrality by expanding the transition to renewable energy. We will also actively participate in carbon removal by utilizing biochar materials.

**Planned actions to mitigate emissions beyond your value chain (optional)**

**C4.3**

**(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.**

Yes

**C4.3a**

**(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	13	14,384
Implementation commenced*	1	612
Implemented*	2	2,831
Not to be implemented	0	0

**C4.3b**

**(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

**Initiative category & Initiative type**

Energy efficiency in buildings

Other, please specify

Energy efficiency improvement

**Estimated annual CO2e savings (metric tonnes CO2e)**

1,353

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

2,931,000,000

**Investment required (unit currency – as specified in C0.4)**

18,074,000,000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

21-30 years

**Comment**

We reduced greenhouse gas emissions by installing equipment to improve energy efficiency in data center buildings or recovering waste heat.

---

**Initiative category & Initiative type**

Low-carbon energy consumption

Solar PV

**Estimated annual CO2e savings (metric tonnes CO2e)**

872

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

2,000,000

**Investment required (unit currency – as specified in C0.4)**

20,000,000

**Payback period**

11-15 years

**Estimated lifetime of the initiative**

21-30 years

**Comment**



Kakao has reduced greenhouse gas emissions by purchasing eco-friendly electricity from solar power plants to operate its Jeju office.

**Initiative category & Initiative type**

Low-carbon energy generation  
Solar PV

**Estimated annual CO2e savings (metric tonnes CO2e)**

607

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

163,000,000

**Investment required (unit currency – as specified in C0.4)**

6,472,000,000

**Payback period**

>25 years

**Estimated lifetime of the initiative**

21-30 years

**Comment**

We reduced greenhouse gas emissions by using eco-friendly power through renewable energy facilities installed in the data center building.

### C4.3c

**(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

Method	Comment
Dedicated budget for other emissions reduction activities	Kakao has set a Net Zero goal for 2040 and joined RE100 in the first half of 2023 to help achieve that goal. 99% of Kakao's GHG emissions are generated by electricity, so reaching RE100 will bring us closer to achieving our Net Zero goal. In response, Kakao has been exploring various options for procuring renewable energy since 2022 and has replaced 100% of its Jeju office's electricity usage with solar power by purchasing certificates to cover the cost of procuring renewable energy. As such, Kakao plans to gradually expand the scale of renewable energy procurement based on the achievement of RE100 for

	the Jeju office and will establish and reflect a renewable energy procurement budget every year.
--	--

## C4.5

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?**

Yes

## C4.5a

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.**

---

### **Level of aggregation**

Product or service

### **Taxonomy used to classify product(s) or service(s) as low-carbon**

The EU Taxonomy for environmentally sustainable economic activities

### **Type of product(s) or service(s)**

Other

Other, please specify

EV transition services expansion

### **Description of product(s) or service(s)**

The scope of eco-friendly activities has been set by establishing the six environmental goals of the EU Taxonomy. The most representative of these, mitigating climate change, requires expanding electric vehicle services.

Kakao's Platform Division is actively promoting ESG management to maintain a sustainable environment. As a result, we are striving to actively participate in and promote the transition to electric vehicles, which is necessary to mitigate climate change.

Considering the nature of the platform business, we are implementing various policies to help our partners switch to electric vehicles. We support the purchase cost of KRW 2 million for drivers who purchase vehicles through the Electric Taxi Store and provide additional discounts in partnership with Kia Motors. In addition, the company supports a card that can be recharged at a discounted rate at GS Caltex and provides battery management solutions from LG Energy Solutions. In this way, Kakao is providing a variety of support to promote electric vehicles, and as a result, more than 10,000 taxis under its membership have been converted to electric cars.

In line with the advantages of its platform services and ESG management strategy,

Kakao is actively participating in climate change mitigation, which is the core of the EU Taxonomy, and actively working to promote electric vehicles, the main means of climate change mitigation.

**Have you estimated the avoided emissions of this low-carbon product(s) or service(s)**

Yes

**Methodology used to calculate avoided emissions**

Other, please specify

Calculating avoided emissions from switching to electric vehicles

**Life cycle stage(s) covered for the low-carbon product(s) or services(s)**

Use stage

**Functional unit used**

km

**Reference product/service or baseline scenario used**

The majority of taxis run on LPG. Therefore, we calculated the GHG reduction that could be generated by converting LPG taxis to electric taxis

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

Use stage

**Estimated avoided emissions (metric tons CO<sub>2</sub>e per functional unit) compared to reference product/service or baseline scenario**

7,808,500

**Explain your calculation of avoided emissions, including any assumptions**

Kakao monitored and collected the total number of kilometers traveled by taxi drivers who are members of the platform and drive electric vehicles. The total travel distance collected in 2022 equals 117,000,000 km, and the GHG emission factor of LPG conversion to electric vehicles is 66.704 gCO<sub>2</sub>eq/km. Therefore, the avoided emissions were calculated as follows.

\* Method for calculating avoided emissions = Total distance traveled by EVs in 2022 (km) × (LPG emission factor - EV emission factor)

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

1.5

## C5. Emissions methodology

### C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

### C5.1a

**(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?**

Row 1

**Has there been a structural change?**

No

### C5.1b

**(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?**

	<b>Change(s) in methodology, boundary, and/or reporting year definition?</b>	<b>Details of methodology, boundary, and/or reporting year definition change(s)</b>
Row 1	Yes, a change in boundary	Kakao has changed its reporting boundaries to set Scope 3 targets and monitor and manage emissions for its value chain. As a result, from 2022, we will report on a total of 13 categories, compared to only one category for commuting emissions.

### C5.1c

**(C5.1c) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in C5.1a and/or C5.1b?**

	<b>Base year recalculation</b>	<b>Scope(s) recalculated</b>	<b>Base year emissions recalculation policy, including significance threshold</b>	<b>Past years' recalculation</b>
Row 1	Yes	Scope 3	We have changed the scope of our Scope 3 emissions calculation. In 2021, we reported only one Scope 3 category, but after an entire screening process, we calculated additional categories through emissions refinement. In total, we have calculated emissions for 13 categories and plan to monitor them for continuous value chain emissions management.	Yes

### C5.2

**(C5.2) Provide your base year and base year emissions.**

## Scope 1

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO2e)**

233

**Comment**

## Scope 2 (location-based)

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO2e)**

85,087

**Comment**

## Scope 2 (market-based)

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO2e)**

85,087

**Comment**

## Scope 3 category 1: Purchased goods and services

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO2e)**

137

## Comment

### Scope 3 category 2: Capital goods

---

#### Base year start

January 1, 2021

#### Base year end

December 31, 2021

#### Base year emissions (metric tons CO2e)

47,898

## Comment

### Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

---

#### Base year start

January 1, 2021

#### Base year end

December 31, 2021

#### Base year emissions (metric tons CO2e)

6,176

## Comment

### Scope 3 category 4: Upstream transportation and distribution

---

#### Base year start

January 1, 2021

#### Base year end

December 31, 2021

#### Base year emissions (metric tons CO2e)

3

## Comment

### Scope 3 category 5: Waste generated in operations

---

#### Base year start

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO<sub>2</sub>e)**

56

**Comment**

**Scope 3 category 6: Business travel**

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO<sub>2</sub>e)**

91

**Comment**

**Scope 3 category 7: Employee commuting**

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO<sub>2</sub>e)**

210

**Comment**

**Scope 3 category 8: Upstream leased assets**

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO<sub>2</sub>e)**

0

**Comment**

**Scope 3 category 9: Downstream transportation and distribution**

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO2e)**

110

**Comment**

**Scope 3 category 10: Processing of sold products**

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO2e)**

0

**Comment**

**Scope 3 category 11: Use of sold products**

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO2e)**

8,151

**Comment**

**Scope 3 category 12: End of life treatment of sold products**

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO2e)**

253

**Comment**



### Scope 3 category 13: Downstream leased assets

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO<sub>2</sub>e)**

272

**Comment**

### Scope 3 category 14: Franchises

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO<sub>2</sub>e)**

25

**Comment**

### Scope 3 category 15: Investments

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO<sub>2</sub>e)**

6,011

**Comment**

### Scope 3: Other (upstream)

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO<sub>2</sub>e)**

0

**Comment**

**Scope 3: Other (downstream)**

---

**Base year start**

January 1, 2021

**Base year end**

December 31, 2021

**Base year emissions (metric tons CO<sub>2</sub>e)**

0

**Comment**

## C5.3

**(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

ISO 14064-1

Korea GHG and Energy Target Management System Operating Guidelines

## C6. Emissions data

### C6.1

**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO<sub>2</sub>e?**

**Reporting year**

---

**Gross global Scope 1 emissions (metric tons CO<sub>2</sub>e)**

248

**Start date**

January 1, 2022

**End date**

December 31, 2022

**Comment**

## Past year 1

---

### Gross global Scope 1 emissions (metric tons CO<sub>2</sub>e)

233

### Start date

January 1, 2021

### End date

December 31, 2021

### Comment

## C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

### Row 1

---

#### Scope 2, location-based

We are reporting a Scope 2, location-based figure

#### Scope 2, market-based

We are reporting a Scope 2, market-based figure

### Comment

## C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO<sub>2</sub>e?

### Reporting year

---

#### Scope 2, location-based

68,016

#### Scope 2, market-based (if applicable)

67,143

### Start date

January 1, 2022

### End date

December 31, 2022

### Comment

## Past year 1

---

**Scope 2, location-based**

85,087

**Scope 2, market-based (if applicable)**

85,087

**Start date**

January 1, 2021

**End date**

December 31, 2021

**Comment**

## C6.4

**(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?**

No

## C6.5

**(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.**

### Purchased goods and services

---

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO<sub>2</sub>e)**

63

**Emissions calculation methodology**

Average data method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

Kakao calculated the scope 3 emissions generated in the manufacturing stage and before manufacturing the purchased products.

Two methods were applied to calculate Scope 3 emissions, and the calculation standards were divided according to whether or not the product had an LCI emission

factor.

1) If an Environmental Product Declaration exists

: Quantity of products purchased × emission factors of the product's pre-manufacturing and manufacturing stages

2) If Environmental Product Declaration does not exist

: Purchase cost × cost intensity by industry

## Capital goods

---

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

49,508

### Emissions calculation methodology

Average data method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

Kakao calculated the scope 3 emissions generated in capital goods.

Two methods were applied to calculate Scope 3 emissions, and the calculation standards were divided according to whether or not the product had an LCI emission factor.

1) If an Environmental Product Declaration exists

: Quantity of products purchased × emission factors of the product's pre-manufacturing and manufacturing stages

2) If Environmental Product Declaration does not exist

: Purchase cost × cost intensity by industry

## Fuel-and-energy-related activities (not included in Scope 1 or 2)

---

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

7,922

### Emissions calculation methodology

Fuel-based method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

Kakao calculated GHG emissions in the progress of producing fuel purchased.  
The upstream emissions generated by the purchased fuel are calculated as follows.  
→ Fuel purchased × emission factor generated in the production process of fuel

### Upstream transportation and distribution

---

#### Evaluation status

Relevant, calculated

#### Emissions in reporting year (metric tons CO<sub>2</sub>e)

1

#### Emissions calculation methodology

Distance-based method

#### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

#### Please explain

Kakao calculated the Scope 3 emissions generated by the transportation of purchased products.

To calculate the emissions, the distance traveled, fuel efficiency, and emission factor are required, and based on these parameters, it is calculated as follows.

→ Total distance traveled × average fuel efficiency × emission factor

### Waste generated in operations

---

#### Evaluation status

Relevant, calculated

#### Emissions in reporting year (metric tons CO<sub>2</sub>e)

282

#### Emissions calculation methodology

Waste-type-specific method

#### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

#### Please explain

We calculated the Scope 3 emissions generated in the process of processing waste generated by Kakao.

Emissions were calculated based on the amount of waste processed by type of waste and the method of waste disposal, and the method of calculating emissions is as follows.

→ Waste disposal × emission factor based on waste disposal

### Business travel

---

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

435

**Emissions calculation methodology**

Distance-based method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

Kakao calculated the Scope 3 emissions of business trips generated by employees by deriving the travel distance by means of transportation at home and abroad.

→ Travel distance by vehicle × number of people × emission factor by vehicle

---

**Employee commuting**

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

71

**Emissions calculation methodology**

Distance-based method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

Kakao calculated the Scope 3 emissions following the shuttle bus operation status generated by Kakao employees commuting to and from the company.

→ Total distance traveled by shuttle bus × fuel efficiency of shuttle bus × percentage of Kakao × emission factor

---

**Upstream leased assets**

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Upstream leased assets emissions are included and reported when reporting Scope 1 and 2, so they are excluded from the calculation to avoid redundant emissions.

---

**Downstream transportation and distribution**

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

87

**Emissions calculation methodology**

Distance-based method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

Kakao calculated Scope 3 emissions from transportation when Kakao products are transferred to customers.

The emissions from downstream transportation were calculated in two ways: cost-based and distance-based, and the appropriate emission calculation method was applied according to the data collection status.

→ 1) Cost base: Transportation cost × downstream transportation cost per unit

2) Distance-based: Total driving distance × average fuel efficiency × emission factor

---

**Processing of sold products**

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Kakao sells final products or provides services, so there is no Scope 3 emissions of Processing of sold product.

---

**Use of sold products**

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

4,547

**Emissions calculation methodology**

Methodology for direct use phase emissions, please specify

Based on usage of sold product method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

Kakao calculated the Scope 3 emissions from Kakao's products sold and used by consumers



The method for estimating Scope3 emissions is as follows.

→ Quantity of products sold × electricity × lifetime × emission factor

### End of life treatment of sold products

---

#### Evaluation status

Relevant, calculated

#### Emissions in reporting year (metric tons CO2e)

203

#### Emissions calculation methodology

Waste-type-specific method

#### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

#### Please explain

Kakao calculated Scope 3 emissions from selling and disposing of Kakao's products.

→ Quantity of products sold × weight per product × emission factor based on waste disposal

### Downstream leased assets

---

#### Evaluation status

Relevant, calculated

#### Emissions in reporting year (metric tons CO2e)

207

#### Emissions calculation methodology

Lessor-specific method

#### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

#### Please explain

When another entity leases and uses energy in a building owned by Kakao, we calculate the GHG emissions generated by that energy use.

The method for calculating Scope 3 emissions for downstream leased assets is as follows.

→ Total emissions from leased buildings × lease rate

### Franchises

---

#### Evaluation status

Relevant, calculated

#### Emissions in reporting year (metric tons CO2e)

26

**Emissions calculation methodology**

Average data method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

Kakao operates a franchise for Kakao Friends and calculated the Scope 3 emissions generated by the franchise.

→ Dealership area × GHG intensity per area

**Investments**

---

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

7,165

**Emissions calculation methodology**

Franchise-specific method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

**Please explain**

Kakao calculated the Scope 3 emissions of the companies in which it invests.

→ Investment company emissions × shareholding ratio

**Other (upstream)**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

N/A

**Other (downstream)**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

N/A

## C6.5a

**(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.**

### Past year 1

---

**Start date**

January 1, 2021

**End date**

December 31, 2021

**Scope 3: Purchased goods and services (metric tons CO2e)**

137

**Scope 3: Capital goods (metric tons CO2e)**

47,898

**Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)**

6,176

**Scope 3: Upstream transportation and distribution (metric tons CO2e)**

3

**Scope 3: Waste generated in operations (metric tons CO2e)**

56

**Scope 3: Business travel (metric tons CO2e)**

91

**Scope 3: Employee commuting (metric tons CO2e)**

210

**Scope 3: Upstream leased assets (metric tons CO2e)**

0

**Scope 3: Downstream transportation and distribution (metric tons CO2e)**

110

**Scope 3: Processing of sold products (metric tons CO2e)**

0

**Scope 3: Use of sold products (metric tons CO2e)**

8,151

**Scope 3: End of life treatment of sold products (metric tons CO2e)**

253

**Scope 3: Downstream leased assets (metric tons CO2e)**

272

**Scope 3: Franchises (metric tons CO2e)**

25

**Scope 3: Investments (metric tons CO2e)**

6,011

**Scope 3: Other (upstream) (metric tons CO2e)**

0

**Scope 3: Other (downstream) (metric tons CO2e)**

0

**Comment**

## C6.7

**(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?**

No

## C6.10

**(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

---

**Intensity figure**

0.000000009

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

67,391

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

7,106,836,860,945

**Scope 2 figure used**

Market-based

**% change from previous year**

32

**Direction of change**

Decreased

### Reason(s) for change

Change in renewable energy consumption  
Other emissions reduction activities

### Please explain

Kakao's revenue increased by about 16% from KRW 6,136,669,167,665 in 2021 to KRW 7,106,836,860,945 in 2022, while reducing GHG emissions by about 21%, resulting in a 32% reduction in GHG emission intensity per revenue.

Kakao applied an eco-friendly integrated design to its Ansan data center. We reduced energy and GHG emissions by applying a waste heat recovery system, improving insulation performance, using a high performance double facade system, and applying eco-friendly energy technologies. In addition, we are reducing greenhouse gas emissions by purchasing eco-friendly electricity generated by solar power plants to operate our Jeju office. As we continue to actively participate in GHG reduction, our GHG intensity as a percentage of revenue has decreased.

## C7. Emissions breakdowns

### C7.1

**(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?**

Yes

### C7.1a

**(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	243	IPCC Second Assessment Report (SAR - 100 year)
CH4	1	IPCC Second Assessment Report (SAR - 100 year)
N2O	4	IPCC Second Assessment Report (SAR - 100 year)
HFCs	0	IPCC Second Assessment Report (SAR - 100 year)
PFCs	0	IPCC Second Assessment Report (SAR - 100 year)
SF6	0	IPCC Second Assessment Report (SAR - 100 year)

NF3	0	IPCC Second Assessment Report (SAR - 100 year)
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## C7.2

**(C7.2) Break down your total gross global Scope 1 emissions by country/area/region.**

Country/area/region	Scope 1 emissions (metric tons CO2e)
Republic of Korea	248

## C7.3

**(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

By facility

### C7.3b

**(C7.3b) Break down your total gross global Scope 1 emissions by business facility.**

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Data Centers	0	37.4057	127.0983
Offline Stores	0	37.556475	126.923808
Jeju Office	80	33.4506	126.5704
Pangyo Office	168	37.4022	127.1086

## C7.5

**(C7.5) Break down your total gross global Scope 2 emissions by country/area/region.**

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Republic of Korea	68,016	67,143

## C7.6

**(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.**

By facility

### C7.6b

**(C7.6b) Break down your total gross global Scope 2 emissions by business facility.**

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Data Centers	59,473	59,473

Offline Stores	337	337
Jeju Office	873	0
Pangyo Office	7,333	7,333

## C7.7

**(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?**

No

## C7.9

**(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Decreased

## C7.9a

**(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.**

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	1,479	Decreased	1.73	Kakao is committed to using renewable energy. In 2022, the entire electricity used for Jeju Office operations was sourced from solar energy. A total of 1,479 tCO2e of greenhouse gas emissions were reduced through the use of renewable energy in the reporting year. This amount corresponds to 1.73% of our total emissions in 2021, and is calculated as follows. → GHG reduction ratio = {Reduction in 2022 (1,479 tCO2eq) ÷ GHG emissions in 2021 (85,320 tCO2eq)} × 100 = 1.73% reduction
Other emissions	1,353	Decreased	1.59	Kakao is making various efforts to reduce greenhouse gas emissions. It

reduction activities				has installed facilities to improve energy use efficiency in its data center buildings and reduced greenhouse gas emissions through waste heat recovery. As such, Kakao is actively engaged in reducing greenhouse gas emissions and plans to explore and implement various reduction activities. In 2022, we reduced GHG emissions by 1,353 tCO <sub>2</sub> eq, which is a 1.59% reduction from our GHG emissions in 2021. The GHG reduction ratio is calculated as follows. → GHG reduction ratio = {GHG reduction in 2022 (1,353 tCO <sub>2</sub> eq) ÷ GHG emissions in 2021 (85,320 tCO <sub>2</sub> eq)} × 100 = 1.59% reduction
Divestment				
Acquisitions				
Mergers				
Change in output				
Change in methodology				
Change in boundary				
Change in physical operating conditions				
Unidentified				
Other				

## C7.9b

**(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Market-based



## C8. Energy

### C8.1

**(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 0% but less than or equal to 5%

### C8.2

**(C8.2) Select which energy-related activities your organization has undertaken.**

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

### C8.2a

**(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	1,146	1,146
Consumption of purchased or acquired electricity		1,899	145,410	147,309

Consumption of purchased or acquired steam		0	2,555	2,555
Consumption of self-generated non-fuel renewable energy		1,321		1,321
Total energy consumption		3,220	149,110	152,330

## C8.2b

**(C8.2b) Select the applications of your organization’s consumption of fuel.**

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	No
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

## C8.2c

**(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

### Sustainable biomass

#### Heating value

HHV

#### Total fuel MWh consumed by the organization

0

#### MWh fuel consumed for self-generation of heat

0

#### MWh fuel consumed for self-generation of steam

0

#### Comment

### Other biomass

---

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**Comment**

### Other renewable fuels (e.g. renewable hydrogen)

---

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**Comment**

### Coal

---

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**Comment**

## Oil

---

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

523

**MWh fuel consumed for self-generation of heat**

523

**MWh fuel consumed for self-generation of steam**

0

**Comment**

## Gas

---

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

623

**MWh fuel consumed for self-generation of heat**

285

**MWh fuel consumed for self-generation of steam**

338

**Comment**

## Other non-renewable fuels (e.g. non-renewable hydrogen)

---

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**Comment**

## Total fuel

---

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

1,146

**MWh fuel consumed for self-generation of heat**

808

**MWh fuel consumed for self-generation of steam**

338

**Comment**

## C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	1,321	1,321	1,321	1,321
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

## C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in C6.3.

**Country/area of low-carbon energy consumption**

Republic of Korea

**Sourcing method**

Default delivered electricity from the grid (e.g. standard product offering by an energy supplier), supported by energy attribute certificates

**Energy carrier**

Electricity

**Low-carbon technology type**

Solar

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**

1,899

**Tracking instrument used**

Contract

**Country/area of origin (generation) of the low-carbon energy or energy attribute**

Republic of Korea

**Are you able to report the commissioning or re-powering year of the energy generation facility?**

No

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

**Comment**

Kakao has procured 100% of its Jeju office's electricity from solar energy by purchasing renewable energy supply certificates generated by citizens. Starting with 100% renewable energy in the Jeju office, Kakao plans to gradually expand the scale of renewable energy procurement in the future.

## C8.2g

**(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.**

---

**Country/area**

Republic of Korea

**Consumption of purchased electricity (MWh)**

147,309

**Consumption of self-generated electricity (MWh)**

1,321

**Consumption of purchased heat, steam, and cooling (MWh)**

2,555

**Consumption of self-generated heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

151,185

## C9. Additional metrics

### C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

## C10. Verification

### C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

### C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

**Verification or assurance cycle in place**

Annual process


**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 (KMR\_VCV\_23004) 검증성명서\_카카오\_영문\_R.1.pdf

**Page/ section reference**

p.1~2

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

## C10.1b

**(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.**

---

**Scope 2 approach**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process


**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 (KMR\_VCV\_23004) 검증성명서\_카카오\_영문\_R.1.pdf

**Page/ section reference**

p.1~2

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

## C10.1c

**(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

---

**Scope 3 category**

Scope 3: Purchased goods and services

Scope 3: Capital goods

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)



- Scope 3: Upstream transportation and distribution
- Scope 3: Waste generated in operations
- Scope 3: Business travel
- Scope 3: Employee commuting
- Scope 3: Investments
- Scope 3: Processing of sold products
- Scope 3: Use of sold products
- Scope 3: End-of-life treatment of sold products
- Scope 3: Downstream leased assets
- Scope 3: Franchises

**Verification or assurance cycle in place**

Annual process


**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 (KMR\_VCV\_23003) 검증성명서\_카카오\_영문\_SCOPE3\_230427\_R.1.pdf

**Page/section reference**

p.1~3

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

## C10.2

**(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

Yes

## C10.2a

**(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

 ESGReport2022\_EN.pdf

Disclosure module verification relates to	Data verified	Verification standard	Please explain

C1. Governance	Other, please specify Climate change responsibilities	AA1000	The accuracy of the question was verified through our Sustainability Report.  1
C2. Risks and opportunities	Other, please specify Risks and opportunities	AA1000	The accuracy of the question was verified through our Sustainability Report.  1
C3. Business strategy	Other, please specify Business strategies by climate change	AA1000	The accuracy of the question was verified through our Sustainability Report.  1
C4. Targets and performance	Emissions reduction activities	AA1000	The accuracy of the question was verified through our Sustainability Report.  1
C5. Emissions performance	Other, please specify Baseline year emissions	AA1000	The accuracy of the question was verified through our Sustainability Report.  1
C6. Emissions data	Other, please specify Emission data	AA1000	The accuracy of the question was verified through our Sustainability Report.  1
C7. Emissions breakdown	Other, please specify Emission details	AA1000	The accuracy of the question was verified through our Sustainability Report.  1
C8. Energy	Energy consumption	AA1000	The accuracy of the question was verified through our Sustainability Report.  1
C11. Carbon pricing	Other, please specify Carbon pricing	AA1000	The accuracy of the question was verified through our Sustainability Report.  1
C12. Engagement	Other, please specify Engagement	AA1000	The accuracy of the question was verified through our Sustainability Report.

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## C11. Carbon pricing

### C11.1

**(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?**

No, but we anticipate being regulated in the next three years

### C11.1d

**(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?**

#### **1. Strategies established to respond to the emissions trading system**

Emissions trading system is a market-based system where the government allocates the emission rights of each companies on an annual basis for emissions within the set range and allows surplus or shortage of emission rights to be traded. If the allocated emissions is exceeded, emission rights acquired through trading within the market is required. If the emission rights are not obtained for the exceeding emissions, there may be financial risk from a fine of three times the average price of the emission trading market. Kakao's ESG Business Division, a dedicated organization created to address climate change, carries out policy monitoring in anticipation of the potential inclusion of the ETS (ETS) in the 4th Basic Plan period. We have a firmly established roles and responsibilities system to systematically respond to the future ETS and have readied ourselves to address regulations and changes within the ETS adeptly. In concordance with government policies, we have pre-estimated the required reduction amounts, considering paid allocations and adjustment factors, and have explored potential directions while devising response strategies. Through continuous tracking and analysis of the emission rights market and prices, we've also examined the financial impact of the ETS on our company. Kakao is further scrutinizing external reduction projects to ensure our advantageous positioning in response to the ETS. Acknowledging this as a significant risk, Kakao has set a 2040 Net Zero goal for mid-to-long-term horizons, along with annual short-term targets. We understand that incorporation into the ETS will influence us in the short-, mid-, and long-term, and we are investigating reduction activities and implementing reduction technologies in preparation. Kakao prepares the basis for company-wide environmental management system based on the greenhouse gas reduction goals to minimize climate impact and establishes mid-to-long-term greenhouse gas reduction goals.

#### **2. Expected timeline for the emissions trading system**

Since Kakao uses a rented data center, Framework Act on Low Carbon, Green Growth and Enforcement Decree of the Act on the Allocation and Trading of Greenhouse Gas Emission Permits is not applied. However, from January of 2024, construction of the Ansan data center will be completed for operation, so it is highly likely that the center will be under the relevant legislation mid-to-long-term with the possible introduction of the emissions trading system in the 4th planning period ('26~'30).

### 3. Examples of applying strategies to respond to the emissions trading system

Kakao explores reduction activities carries out reduction technology throughout Scope 1, 2 and 3 in preparation for the application of the regulation. Kakao first of all established environmental goal of 100% renewable energy conversion for the Jeju headquarter for the purpose of supplying renewable energy to the office and reducing greenhouse gas emission in 2022, purchased renewable energy certificate worth 1900 Mwh and replaced the entire 2022 power usage from the Jeju office with renewable energy. In addition, during construction of the Ansan data center, using natural conditions and applying various energy reduction technology were considered to embody eco-friendly data center. By establishing renewable energy infrastructure and applying highly efficient energy equipment for improved cooling power efficiency, a system that allows recycling of storm water, heavy water and waste heat will be implemented. In addition, with the energy reduction technology, design and construction are being prepared to set the data center as 1.3 PUE or less, with the energy reduction technology. Through these efforts of improvement in energy efficiency, it is expected that approximately 15% of energy usage and carbon emissions can be reduced compared to the previous rented data center. On top of that, to reduce environmental impact of the rented data center currently used, servers where various energy efficiency certifications are obtained are used to manage energy efficiency of the server and power supply devices. to improve energy efficiency of the server room, high heat emitted from the server is separated from the cold air supplied from the cooling device for improved efficiency.

## C11.2

**(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?**

No

## C11.3

**(C11.3) Does your organization use an internal price on carbon?**

Yes

## C11.3a

**(C11.3a) Provide details of how your organization uses an internal price on carbon.**

---

### **Type of internal carbon price**

Shadow price

### **How the price is determined**

Cost of required measures to achieve emissions reduction targets

### **Objective(s) for implementing this internal carbon price**

Drive energy efficiency

Drive low-carbon investment

**Scope(s) covered**

Scope 1  
Scope 2

**Pricing approach used – spatial variance**

Uniform

**Pricing approach used – temporal variance**

Evolutionary

**Indicate how you expect the price to change over time**

Kakao seeks greenhouse gas reduction activities to achieve the goal of net-zero greenhouse gas emissions by 2040, and utilizes internal carbon prices to actually introduce them through investment analysis. For the internal carbon price, we set the standard as the average transaction price of the emission trading market of the year, and in 2022, we used the 2021 average transaction price of KRW 19,708. Kakao has established a scenario in which the internal carbon price rises, considering that greenhouse gas regulations will be strengthened in the mid-to-long-term. Kakao monitors various factors that affect the internal carbon price, including government regulations and policies, energy costs, corporate carbon strategies and targets, market factors, and stakeholder demands, continuing our efforts to advance the internal carbon price.

**Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)**

19,708

**Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)**

19,708

**Business decision-making processes this internal carbon price is applied to**

Capital expenditure  
Operations  
Product and R&D  
Value chain engagement

**Mandatory enforcement of this internal carbon price within these business decision-making processes**

Yes, for some decision-making processes, please specify  
Business economic feasibility and investment analysis

**Explain how this internal carbon price has contributed to the implementation of your organization’s climate commitments and/or climate transition plan**

Kakao declared a net zero goal, aiming at zero greenhouse gas emissions by 2040, and joined SBTi for the first time in the domestic Internet industry to establish SBTi-based goals and implementation paths. In addition, by joining RE100, a global renewable energy initiative, we established a plan to gradually reduce carbon emissions from

electricity use by converting 100% of electricity use to eco-friendly energy by 2040. Kakao set a reasonable internal carbon price and used it for economic feasibility and investment analysis, taking into account the characteristics of carbon emissions centered on Scope 2 and the nature of our business, which is active in a wide range of fields. As a result, we are carrying out various reduction activities to respond to climate change.

Kakao is promoting carbon emissions reduction efforts by measuring and factoring in the cost of carbon through the use of internal carbon pricing for management decisions on investment in mitigation activities. These steps are taken to achieve our medium- to long-term climate change adaptation goals. Based on the evaluation of reduction activities using internal carbon pricing, Kakao intends to transition its commuter buses and corporate vehicles to electric variants in the future. We will also progressively expand our renewable energy supply, starting with 100% renewable energy usage in our Jeju office in 2022. In addition, Scope 3 emission management system is established and advanced to reduce greenhouse gas emission generated from the value chain and prepare management system.

## C12. Engagement

### C12.1

#### (C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, other partners in the value chain

### C12.1a

#### (C12.1a) Provide details of your climate-related supplier engagement strategy.

---

##### Type of engagement

Engagement & incentivization (changing supplier behavior)

##### Details of engagement

Run an engagement campaign to educate suppliers about climate change

##### % of suppliers by number

31

##### % total procurement spend (direct and indirect)

56

##### % of supplier-related Scope 3 emissions as reported in C6.5

65

##### Rationale for the coverage of your engagement

[Background]

Kakao is an Internet company where business activities have relatively little impact on the environment, but we recognize the severity of climate change and the role of the company. As such, in order to reduce carbon emissions not only from the Kakao business but also from the value chain, we are making efforts to more actively respond to environmental issues. Accordingly, Kakao established standards and systems for sustainable supply chain management. Kakao established the 'Supplier Sustainability Guidelines', code of conduct that all partners must comply with and basic guidelines for selecting and managing partners.

[Selection Criteria]

Kakao defines a business partner as a company that transacts goods or service consignments that are highly related to Kakao's business. Kakao established the criteria by adding the 'Supplier Sustainability Guide' element to supplier selection, and selects and manages suppliers to fulfill their social responsibilities by obtaining consent from all suppliers to comply with the guide. Kakao selects suppliers through ESG factors such as human rights, safety, environment, protection of personal information and intellectual property rights and ethical management standards, in addition to the existing evaluation factors. In addition, Kakao selects excellent partners that fulfill their social responsibilities and roles after evaluating whether they satisfy certain conditions, such as purchase partners of a specific scale or larger each year, long-term partners and whether they meet the reason for disqualification (morality, insufficient maintenance, etc.).

[Percentage of engaged suppliers as a percentage of all registered suppliers]

In 2022, 90 out of 292 suppliers (based on K-pick) agreed to abide by the Supplier Code of Conduct. Hence, the proportion of engaged suppliers stands at 31% of all registered suppliers. Over the next three years, Kakao has set a target to raise the ratio of engaged suppliers to 100% of all registered suppliers.

※ number of engaged suppliers/total number of suppliers =  $90/292 = 31\%$

Furthermore, Kakao surveyed its engaged suppliers about their Scope 3 Category 1 and Category 2 emissions. The ratio of emissions from engaged suppliers within Scope 3 emissions is 65%.

※ engaged supplier emissions/ (Scope 3 Category 1 emissions + Category 2 emissions in the supply chain) = 65%

### **Impact of engagement, including measures of success**

[Engagement Performance Criteria]

Kakao has enacted the 'Supplier Sustainability Management Guidelines' to manage suppliers' ESG risks, and requests that suppliers strictly comply with all applicable laws. We ensure that our suppliers strictly comply with applicable environmental laws and regulations when providing products and services, and comply with environmental standards when requested by Kakao as per the contract.

[Engagement Performance Measurement Method]

In addition to existing evaluation factors, Kakao uses and manages ESG factors such as human rights, safety, environment, protection of personal information and intellectual property rights, and ethical management standards as evaluation criteria for selecting suppliers. Kakao identifies and reflects whether suppliers are seeking effective ways to reduce and minimize greenhouse gas emissions generated during the purchasing and contracting process. If the standards required by us are violated or are not improved, we suspend transaction or terminate the contract. In addition, Kakao not only selects and manages partners based on annual standards, but also gives benefits to excellent partners. Every year, excellent partners are selected, invited to Partner's Day and granted with appreciation plaques and gifts. Key incentives provided to excellent suppliers include exemption from contract performance guarantee certificates and free defect repair performance certificates, and additional points given in the supplier selection process.

[Examples]

To minimize greenhouse gas emissions, Kakao discusses various greenhouse gas reduction plans with its partners and supports them to comply with our Code of Conduct. As a specific example, Kakao discussed with its server suppliers about server systems that are operated in an environmentally friendly and sustainable manner in terms of technology and infrastructure. Compared to the previous server system, development and introduction of regenerative server in consideration of energy efficiency, use of renewable energy and reduction in carbon emission as important elements, method to reduce maintenance cost and environmental impact through the extended server span and introduction of highly efficient equipment are discussed. Based on the discussions, Kakao decided to support the suppliers' efforts to pursue carbon neutrality.

**Comment**

## C12.1d

### **(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.**

**• Other Partners in the Value Chain (Definition and Target)**

Another partner in Kakao's value chain can be defined as a taxi operator. In addition to internal efforts to solve climate change-related issues, we are also seeking ways to promote electric taxis to reduce greenhouse gas emissions. Kakao is working to promote electric taxis and respond to climate change-related issues by conducting purchase support programs and battery management services through Kakao Mobility.

**• Climate Change Engagement Strategies and Cases (Details)**

In addition to Kakao customers, Kakao is working to solve climate change-related issues through taxi operators with Kakao Mobility. Kakao Mobility has carried out various programs such as payment of purchase subsidies, discount cards for charging and battery management services to minimize the inconvenience and burden felt by electric taxi users, from vehicle purchase to charging and battery management.



As of December 2022, 10,000 taxis among the taxis with Kakao T Blue and Pro Memberships are operating as electric vehicles. When converting LPG taxis to electric taxis, it is possible to reduce annual carbon emissions by about 3.9tCO<sub>2</sub>eq per car. In fact, Kakao T Blue (affiliated) electric taxis traveled about 117,000,000 km in 2022 alone.

Kakao is also working with partners to provide various support programs to facilitate the transition to electric taxis. Kakao Mobility provides a subsidy of KRW 2 million when purchasing a taxi vehicle from an electric taxi store, and provides additional discounts through partnership with Kia Motors, which produces the vehicle. In addition, these taxi drivers are provided with GS Caltex charging discount cards and LG Energy Solutions' battery management solutions.

## C12.2

### (C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

No, but we plan to introduce climate-related requirements within the next two years

## C12.3

### (C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

#### Row 1

#### External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

Yes, we fund organizations or individuals whose activities could influence policy, law, or regulation that may impact the climate


#### Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

#### Attach commitment or position statement(s)

 KakaoSBTiCommitmentLettersigned26Apr2022.pdf

 ESGReport2022\_EN.pdf

 [카카오]사업보고서(2023.03.20).pdf

#### Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan

Kakao acknowledges the gravity of climate change and has declared medium- and long-term climate change adaptation goals to contribute to worldwide climate change adaptation efforts. In 2023, we joined the global renewable energy initiative, RE100, and aim to progressively reduce carbon emissions from electricity use by converting 60% of our electricity usage on a consolidated basis to green energy by 2030 and to 100% by 2040. Moreover, Kakao is the first enterprise in the domestic internet industry to join the Science Based Targets initiative (SBTi). By setting SBTi-based goals, Kakao has declared a net-zero goal for 2040 as a long-term target and employs varied strategies to achieve the 1.5°C goal in the Paris Agreement. The paths to achieving the RE100 goal and the Net zero goal coincide, as electricity consumption accounts for most of our total GHG emissions.

In line with our organization-wide environmental strategy goals, all matters concerning the environment and GHGs, including engagement activities and company-wide climate change strategies, are discussed by the ESG Business Division, a body dedicated to ESG management, and the ESG Working Group, a council comprising related departments, to ensure alignment. The CEO, who supervises Kakao's overall ESG strategy, and the ESG Committee, the highest ESG decision-making body, make ESG-based decisions to ensure the company's positive impact on the environment and society, secure sustainable growth from a long-term perspective, and maintain consistent engagement activities and climate change strategies.

## C12.3a

**(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?**

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**Specify the policy, law, or regulation on which your organization is engaging with policy makers**

[2050 Carbon Neutrality]

The Digital Carbon Neutrality Council was inaugurated on December 8, 2021, under the leadership of the Ministry of Science and ICT. This collaborative body involves key players in the information and communication technology industry, along with pertinent associations and organizations. As a prominent IT company in Korea, offering many mobile and internet services, Kakao participates in the Digital Carbon Neutrality Council. Together with the Ministry of Science and ICT, we actively engage in discussions to strategize initiatives to facilitate digital-based 2050 Carbon Neutrality.

**Category of policy, law, or regulation that may impact the climate**

Climate change mitigation

**Focus area of policy, law, or regulation that may impact the climate**

Climate-related targets

**Policy, law, or regulation geographic coverage**

National

**Country/area/region the policy, law, or regulation applies to**

Republic of Korea

**Your organization's position on the policy, law, or regulation**

Support with no exceptions

**Description of engagement with policy makers**

The Digital Carbon Neutrality Council is pivotal in endorsing digital carbon neutrality. They hold industry dialogues to contemplate ways to mitigate carbon emissions from the digital industry and optimize energy efficiency using digital technology. Additionally, the council assists in alleviating businesses' challenges in the carbon neutralization process. The Ministry of Science and ICT has declared that they will concurrently advance carbon emission reduction within the ICT industry and amplify energy efficiency utilizing ICT for achieving digital-based 2050 Carbon Neutrality. Firstly, within the digital sector, where energy demand is predicted to persistently escalate due to digital transformation, we are committed to fostering the development and propagation of innovative energy-efficient technologies. These primarily revolve around data centers and networks, which are significant energy consumers within the digital realm. We're also evaluating supportive systems to alleviate companies' difficulties while promoting carbon neutrality. Moreover, we are backing the creation of energy-saving technologies for major emission sources, such as industry, transportation, and buildings, by proactively harnessing Korea's digital capabilities. Via the council, 15 participating businesses and affiliated organizations, including Kakao, have collectively pledged to actively engage in numerous activities. These include enhancing energy efficiency in the digital sector, achieving carbon neutrality using digital technology, and bolstering ESG management to realize carbon neutrality by 2050. Through the Digital Carbon Neutrality Council, Kakao is pioneering the achievement of carbon neutrality by 2050 by utilizing digital technology. We are sharing various initiatives such as developing an eco-friendly consumption environment in digital for the 2050 Carbon Neutrality (like Kakao Talk Dark Mode, Talk Drive, and video quality adjustment), constructing an eco-friendly data center (employing energy efficiency technology, eco-friendly energy production technology, and energy-saving architecture) to explore together how we can contribute to carbon neutrality.

**Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation**

**Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

**Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?**

In line with the global pursuit to achieve the 1.5°C Paris Agreement goal, the Republic of Korea has announced its national vision to transition into a carbon-neutral society by 2050. This pledge is an integral part of South Korea's efforts to bolster the practicality of

achieving carbon neutrality on an international level. To this end, the government elevated its previously established 2030 NDC (Nationally Determined Contribution) reduction target in 2021, rationalized the reduction objectives for each sector, including power and industry sectors, and outlined mid- to long-term GHG reduction policy measures for implementation. The government has also instituted policy tasks centered on progressing towards a carbon-neutral society. The Digital Carbon Neutrality Council is earnestly progressing towards realizing carbon neutrality in the ICT industry, in alignment with the government's mid-to-long-term GHG reduction policy tasks by identifying carbon neutrality agendas and exploring collaboration methodologies.

## C12.3b

**(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.**

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### Trade association

Other, please specify

Korea Internet Corporations Association(Kinternet)

### Is your organization's position on climate change policy consistent with theirs?

Consistent

### Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

### Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

Kinternet (Korea Internet Corporations Association), an industry association representing the Korean ICT industry, has been assigned to host the network council within the Digital Carbon Neutrality Council. This council was initiated on December 8, 2021, by major ICT companies, associated organizations, and the Ministry of Science and ICT, to deliberate on ways to actualize digital-based 2050 carbon neutrality. Kinternet will rally ICT companies to join the carbon neutrality endeavor and facilitate the discovery of technologies, policies, and systems geared towards realizing carbon neutrality, such as enhancing energy efficiency within the ICT sector. As a participant in the Kinternet, Kakao will partake in the network council to contribute to technological advancement and system improvement.

### Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

1,000,000

**Describe the aim of your organization's funding**

Kinternet, the industry association representing Korea's ICT industry, fosters growth within the sector by solidifying unity among its member companies, assisting the National Assembly and government entities in better comprehending the Internet industry and enhancing the uneven regulatory environment. It also creates various touchpoints for the public to engage with the ICT industry more comfortably. Specifically, with the government's declaration of 2050 Carbon Neutrality, the responsibility for companies to adapt to climate change has been magnified. Kakao is part of the industry association that hosts a network council under the Digital Carbon Neutrality Council. This council was launched jointly by leading ICT companies, related associations, and organizations to discuss methods to achieve digital-based carbon neutrality by 2050. By offering financial contributions to the industry association, Kakao collaborates on developing technologies and improving systems to adapt to climate change.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

**C12.3c**

**(C12.3c) Provide details of the funding you provided to other organizations or individuals in the reporting year whose activities could influence policy, law, or regulation that may impact the climate.**

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**Type of organization or individual**

Non-Governmental Organization (NGO) or charitable organization

**State the organization or individual to which you provided funding**

UNGC Korea

**Funding figure your organization provided to this organization or individual in the reporting year (currency as selected in C0.4)**

22,000,000

**Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate**

Kakao is striving to build an ESG management ecosystem by fulfilling its corporate social responsibility by joining as a UNGC member company in February 2021 and internalizing the 10 principles, including the environment, throughout corporate management. The UN Global Compact(UNGC) is the world's largest voluntary corporate sustainability initiative of the United Nations, to which more than 20,000 member companies from 162 countries around the world have joined. UNGC presents 10 principles including the environment for companies to conduct sustainable business and supports the achievement of comprehensive UN environmental goals such as the Sustainable Development Goals(SDGs). According to the principles, businesses should

support a precautionary approach to environmental challenges, undertake measures that promote environmental responsibility, and strive to promote the development and diffusion of environmentally friendly technologies. UNGC is also one of the co-organizers of the Science-Based Reduction Targets Initiative(SBTi). As the number of domestic companies that have joined SBTi and submitted their goals has recently increased, UNGC Korea has co-translated and co-published the Net-Zero Standard for SBTi companies with the Korea Socially Responsible Investment Forum(KoSIF) and the World Wildlife Fund Korea(WWF-Korea), striving to support companies' procedure of responding to greenhouse gas reduction target. In addition, UNGC Korea cooperates with members of the National Assembly and is one of the key organizations influencing environmental and climate change-related policies or regulations. In fact, in June 2022, ESG institutionalization forum was hosted to share ESG-related ideas collected from members of relevant government ministries.

**Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

## C12.4

**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

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**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

 [카카오]사업보고서(2023.03.20).pdf

**Page/Section reference**

- Governance : P.43~44, P.418~420
- Emission targets(Net Zero, RE100) : P. 45
- Strategy : P. 45
- Other(Reduction of greenhouse gases) : P.45~49

**Content elements**

Governance  
Strategy  
Emission targets  
Other metrics

## Comment

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### Publication

In mainstream reports

### Status

Complete

### Attach the document

 [카카오][정정]분기보고서(2023.06.29).pdf

### Page/Section reference

- Strategy(Environmental Impact Reduction Activities) : p. 42~45
- Emission targets(Net Zero, RE100) : p. 41
- Greenhouse Gas Reduction Directions : p. 41

### Content elements

Strategy  
Emission targets  
Other metrics

## Comment

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### Publication

In voluntary sustainability report

### Status

Complete

### Attach the document

 ESGReport2022\_EN.pdf

### Page/Section reference

p. 14~20, p. 26~34, p. 95~96, p. 108, p. 113~114

### Content elements

Governance  
Strategy  
Risks & opportunities  
Emissions figures  
Emission targets

Other metrics

Other, please specify

GHG Reduction Performance, Environmental Expenditure & Investment, Biodiversity

**Comment**

## C12.5

**(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.**

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	Pledge to Net Zero RE100 Task Force on Climate-related Financial Disclosures (TCFD) UN Global Compact	<p>(Pledge to Net Zero) Kakao has pledged a '2040 Net-Zero' goal to align with the 1.5°C Paris Agreement goal, making it the first company in the domestic internet industry to join SBTi. Grounded in our environmental management goals, we aim to drive the transition towards a low-carbon society through our platform's strengths expressed via Kakao services. We have formulated an environmental management strategy system called the "Active Green Initiative," guided by principles such as "adherence to global environmental standards," "management and operation of key environmental indicators," "contributing to the environment through services," and "conducting eco-friendly activities alongside users and partners." Our endeavor is to play an active role in addressing the climate crisis. We aim to contribute to achieving the UN Paris Climate Change Agreement goals through carbon emission reduction activities across the entire value chain, involving our Krews, partners, users, and society members.</p> <p>(RE100) Kakao has completed joining RE100 in line with international trends and plans to convert 100% of our electricity use to eco-friendly energy by 2040. In order to reduce emissions from electricity use, which accounts for about 99.6% by 2022, we are expanding investments to expand the use of renewable energy. As a member of RE100 (use of 100% renewable energy), we also submitted a RE100 implementation plan to achieve 60% renewable energy use by 2030 and 100% by 2040. We plan to successfully implement RE100 by continuously monitoring future policies and market conditions.</p> <p>(Task Force on Climate-related Financial Disclosures(TCFD)) Kakao actively participated in responding to climate change in response to the demands of the international community, identified the actual and</p>



		<p>potential financial impact of climate change, and established the company's strategic path and management system. Based on the TCFD recommendations, Kakao transparently discloses the current status of Kakao's response to climate change in terms of governance structure, strategy, risk management, indicators, and reduction targets. In addition, we plan to establish achievement goals for the contents that need improvement and continuously supplement them through additional reviews.</p> <p>(UN Global Compact) In February 2021, Kakao joined the UN Global Compact, a business consultative body under the United Nations. We are implementing the 10 principles including the environment by supporting the UN Global Compact (UNGC). In addition, we comprehensively support the UN's development plan including the Sustainable Development Goals (SDGs). Kakao will continue to carry out various activities to solve social problems at home and abroad and spread the global ESG trend by complying with and supporting the UNGC principles.</p>
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## C15. Biodiversity

### C15.1

**(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?**

	<b>Board-level oversight and/or executive management-level responsibility for biodiversity-related issues</b>	<b>Description of oversight and objectives relating to biodiversity</b>
Row 1	Yes, both board-level oversight and executive management-level responsibility	<p>Kakao's ESG Committee functions as the highest decision-making consultative body to review the direction of Kakao's ESG strategy, manage and supervise environmental issues and countermeasures, review risks and supervise ESG management performance. Within the goal of a sustainable environment, Kakao manages the environment-related responsibilities so that we can be promoted in connection with management strategies. Kakao's environmental responsibilities include biodiversity conservation as well as climate change response, green digital establishment, resource conservation and environmental protection.</p> <p>Kakao's ESG Business Division conducts assessments of</p>

		<p>biodiversity-related matters and reports to the CEO upon identification of any substantial issues. Furthermore, biodiversity conservation is a key discussion point within the ESG Committee's agenda. We have laid down principal commitments and responsibilities toward safeguarding biodiversity and have an operational action plan.</p> <p>Kakao decided to support marine ecosystem and forest conservation activities with the goal of preserving biodiversity for a sustainable environment. We intend to plan and expand user participation-type activities for the protection of community biodiversity and forest regeneration. Kakao actually raised funds for marine environment improvement and forest restoration through the 'Eco Seed Campaign'. And through the Jeju Impact Challenge, we are supporting Jeju's Marine Ecosystem Cleanup Project. In addition, through the Kakao Impact Fellowship, we supported research on the behavioral characteristics and ecological environment of Jeju's Indo-Pacific bottlenose dolphins and activities to preserve the marine ecosystem.</p>
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## C15.2

**(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?**

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Initiatives endorsed
Row 1	Yes, we have endorsed initiatives only	SDG

## C15.3

**(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?**

### Impacts on biodiversity

**Indicate whether your organization undertakes this type of assessment**

No, but we plan to within the next two years

### Dependencies on biodiversity

**Indicate whether your organization undertakes this type of assessment**

No, but we plan to within the next two years

## C15.4

**(C15.4) Does your organization have activities located in or near to biodiversity-sensitive areas in the reporting year?**

Not assessed

## C15.5

**(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?**

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity-related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Species management Education & awareness


## C15.6

**(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?**

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No, we do not use indicators, but plan to within the next two years	

## C15.7

**(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Impacts on biodiversity Other, please specify Conservation Activities for Biodiversity	EGSReport2022_EN p.34  1

 1 ESGReport2022\_EN.pdf

## C16. Signoff

### C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

### C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	President	President

## SC. Supply chain module

### SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

### SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	

### SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

### SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

## SC1.3

**(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?**

<b>Allocation challenges</b>	<b>Please explain what would help you overcome these challenges</b>
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## SC1.4

**(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?**

## SC2.1

**(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.**

## SC2.2

**(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?**

## SC4.1

**(SC4.1) Are you providing product level data for your organization's goods or services?**

## Submit your response

**In which language are you submitting your response?**

English

**Please confirm how your response should be handled by CDP**

	<b>I understand that my response will be shared with all requesting stakeholders</b>	<b>Response permission</b>
Please select your submission options	Yes	Public

**Please confirm below**

I have read and accept the applicable Terms