Samsung SDS - Climate Change 2022

C0. Introduction

C0.1

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

Founded in 1985, Samsung SDS is a ICT company with solutions which have been leading the digital transformation and innovation of clients for over 30 years across a wide range of industries. With operations in 40+ countries, Samsung SDS' solutions utilize advanced analytics platforms, AI, blockchain, cloud technologies to serve a diverse range of industries including financial services, smart manufacturing, global logistics, and retail. Our vision for the new era is to become a data-driven digital transformation leader by leveraging the most advanced ICT technologies and solutions to discover actionable insights. Sustainability is central to Samsung SDS to enable digital technologies to make life better for everyone, everywhere. Setting goals for sustainability, Samsung SDS focuses where we can have the greatest impact. We recognize and embrace the opportunity and responsibility to address some of the greatest shared challenges facing society today, including climate change, the shift to cleaner energy, access to quality education and economic opportunity, human rights protection throughout the supply chain, and data security and privacy. We are committed to enabling to achieve a low-carbon.

We are working to support all UN Sustainable Development Goals and TCFD. To find out more about us, please read our Sustainability Report at https://www.samsungsds.com/en/sustainability/downloads.html

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2021	December 31 2021	No	<Not Applicable>

C0.3

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

Brazil
China
India
Republic of Korea
Singapore
United Arab Emirates
United Kingdom of Great Britain and Northern Ireland
United States of America
Viet Nam

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	KR7018260000

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(s)	Please explain
Board-level committee	In October, 2021, the ESG Committee was founded in line with Article 3 of the Operational Regulations of the ESG Committee. The committee has the authority to deliberate on and reaches decisions concerning the establishment of ESG strategies and policies, current ESG issues and promotional activities, and other ESG-related matters concerning which actions are deemed necessary. Specifically, the ESG committee is responsible to review and provide guidance to management and the BOD on environmental matters, including climate change, and therefore this committee is responsible for reviewing and providing guidance on the company's climate-related policies and programs. Recently the committee received a report on establishing Environmental Management TF in charge of environmental management including responsibility of handling corporate climate-related issues under CFO, the head of Corporate Management Office. The first substantial committee meeting was held in January, 2022, and the committee received reports and briefings on ESG work plans, the Environment Management TF organization and operation plan, and CSR program. Further, to support the committee members' decision making, ESG Committee Workshop was held to discuss on environment issues and Samsung SDS strategy for climate change and carbon neutral.
Chief Executive Officer (CEO)	Samsung SDS CEO carries strategic oversight of the company's sustainability which includes climate change issues as a part of the environmental management. CEO approves and oversights the company's sustainability policy and targets, and is responsible for providing resources required to implement activities to improve the company's sustainability. Along with major decisions making on developing business model or business strategy of environment-friendly solutions and services, he instructs directly on energy efficiency improvements and greenhouse gas mitigation measures and evaluates progress and task performances. CEO is responsible to reflect the above climate change related strategies into business and operational strategy.
Chief Financial Officer (CFO)	CFO is responsible for overseeing sustainable risk management specifically including publishing sustainability report and responding to corporate sustainability assessments including CDP and DJSI. As a chair of the ESG Council and the Environment Management TF, CFO plans and operates ESG related activities, and reports the progress and result to the BOD on a quarterly or as often as it is needed. ESG strategies, plans, and achievements were reported to the ESG Committee.

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	Scope of board-level oversight	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	The BOD reviews the company's sustainability matters including climate-related issues, strategy, and programs. The BOD meetings are held regularly on a quarterly basis, and more often when there is a deemed needs. Reviewing and guiding sustainability strategy and goals enables the BOD to understand, oversee and advise on the role and impact of climate change and other key sustainability issues on our business. Climate-related issues are briefed to the BOD by the ESG Council and the Environment Management TF.

C1.1d

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

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	Cloud Service Business Division leader is in charge of climate change response including data center efficiency. Evaluation of the member depends on data center PUE improvement. Since about 90% of Samsung SDS carbon emission occurs from data center operation, it is inevitable for the Cloud Service Business Division to concern environmental impact of their cloud business. With deep understanding and expertise in industry, and as a member of the BOD, the division leader manages, oversees, and advises on related matters. A part of performance evaluation criteria of this member is on achieving data center efficiency. Because of the Cloud Service Business Division leader's competency requires deep understanding in data center operation and efficiency, improving the data center energy efficiency and achieving operational excellence by adapting related technologies are essential. Currently eco-friendly technologies such as liquid cooling and ups-less are considered to improve PUE of the data centers.	<Not Applicable>	<Not Applicable>

C1.2

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly
Chief Financial Officer (CFO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

Accountability to advance environmental performance at Samsung SDS starts at the top, with our Board, which includes our CEO, who is responsible for providing governance and oversight over the strategy, operations and management. Along with the BOD, Samsung SDS has ESG Council to manage overall ESG related issues, and Risk Management Council which receives briefings twice a month on both financial and non-financial risks including climate-related issues. This process allows us to escalate climate risks to the Board as frequently as necessary—even to every Board meeting—if climate-related risks were within the most critical set of risks for review. The CFO reports to the CEO and coordinates the Company's annual Risk Management process and actively monitors business continuity risks, including climate-related risks, as part of that process.

CFO, Head of Corporate Management Office, is responsible for corporate-wide risk and opportunity management, and also plays a role as the CRO, Head of Risk Management Council, responsible for assessing and managing risks and opportunities. Based on the policy, procedures and checklists, the council mainly reviews the risks and opportunities of our business. The areas where expertise or advanced knowledge is required such as financial risks or climate change-related risks and opportunities, respective team controls and manages its related risks and opportunities. The Risk Management Council holds meetings every other Friday. The issues monitored and discussed by the council are briefed on a quarterly basis. Therefore, the BOD can be reported any significant climate-related risks.

Additionally, the Data Center Innovation Team leader is in charge of climate change mitigation strategy by each data center for better efficiency for approximately 90% of Samsung SDS' GHG emissions is generated from data centers. The Data Center Innovation Team leader reviews the overall risks of climate change related to the data centers while making detailed planning and investment decisions. The team leader is responsible for receiving reports on GHG emissions and emission rights, making decisions on emissions trading, and reporting important issues to the Risk management Council.

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	Samsung SDS offers monetary incentives management in charge of climate change tasks based on the performance of their work.

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	Type of incentive	Activity incentivized	Comment
Chief Executive Officer (CEO)	Monetary reward	Emissions reduction project Emissions reduction target Efficiency project Efficiency target	The CEO has responsibility to oversee and make decisions on climate-related issues. Therefore, a part of the variable compensation depends on the performance of these business units, including their GHG reduction target. Samsung SDS transparently and accurately evaluates CEO according to the KPIs.
Business unit manager	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target	The Head of Data Center Innovation Team receives annual salary based on the performance on climate change goals and related objectives on energy efficiency, water use, and related activities. Other activities that are linked with sustainability incentives are energy efficiency targets and GHG reduction target.
Facilities manager	Monetary reward	Emissions reduction target Energy reduction target Efficiency target	Facility managers carry the company's climate change goals as part of their business goals and objectives. The goals are defined in terms of energy efficiency improvements and adoption of renewable energy in the operations.
Chief Financial Officer (CFO)	Monetary reward	Company performance against a climate-related sustainability index	Our CFO is responsible for overseeing sustainability including climate-related issues. A part of his KPI is considered by results of corporate sustainability assessment including CDP, DJSI, etc.

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	1	4	2021-2025
Medium-term	4	10	2025-2030
Long-term	10	30	2031~2050

C2.1b

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

Samsung SDS endeavors to voluntarily implement the recommendations of the TCFD along with the guidelines of CDP on climate change. Accordingly, the substantive financial and strategic impacts associated with climate change is defined as follows: the impact of low carbon transition (policy, regulation, technology, market, reputation) or physical risk of climate change on the company's existing business activities (e.g. operation of data center) and financial management (e.g. corporate cash flow, profit and loss). In terms of financial impact, we consider risks and opportunities with potential financial implications of over KRW 1.6 billion per year for our business as substantive financial impact for Samsung SDS.

Financial Impacts

1) Cost of Purchasing Carbon Credits

Samsung SDS is subject to the national GHG Emissions Trading Scheme(ETS), and has been allocated carbon credits for all domestic business sites from 2021. If the amount of emissions exceeds the quota, additional allowances must be purchased or emissions must be reduced. As the paid allocation ratio for the Phase 3 of the ETS is set as 10%, there will be a serious shortage of carbon credits. That is, the credit cost may increase and additional costs may incur.

2) Purchase Costs for Renewable Energy

In order to meet its goal of achieving carbon neutrality by 2050, the Korean government has enacted a number of policies and regulations to lower carbon output and increase the use of renewable energies. The government is expected to phase out energy generated by fossil fuel and maximize the use of renewable energy in order to achieve 2050 national net zero target. The government policy to switch to renewable energy has a significant impact on the industry; the demand for renewable energy is expected to skyrocket causing price hikes and procurement risks.

3) Increase in Cooling Costs due to Global Warming

When operating data center infrastructure, the most energy is consumed to cool the server room. Climate change causes global warming and increases the cooling costs of data centers.

C2.2

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

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
Although we do not belong to carbon-intensive industry, it is inevitable for everyone to be impacted by climate change. Samsung SDS is fully aware of the importance of corporate roles in response to climate change. The CFO is given the responsibility and authority to make important decisions such as investment in climate change mitigation. CFO 1) meets twice a month with leaders of related departments and business units to discuss emerging risks, 2) prepares environmental management guidelines and monitoring of the system through regular inspections 3) drives environmental management for data centers where most likely affected by climate-related issues. When significant risks may be escalated for consideration, related teams assess the issues and report back to the Risk Management Council under CFO. The Board of Directors validates this risk priority annually and receives quarterly briefings from CFO. To identify climate-related risks, we engage key stakeholders to help us understand relevant environmental and social issues. Furthermore, "Materiality Analysis" was conducted as part of preparing sustainability report to prioritize and analyze the climate change and sustainability issues that may affect the company and its stakeholders from the short- to long-term perspective every year. The climate-related issues include low carbon transition risks and opportunities and their financial implications. As a result, climate change is considered to be one of the important issues, and we are conducting risk analysis, response, and evaluation activities related to this issue. Designated the CFO as the Chief Risk Officer (CRO), the Risk Management Council manages sustainability issues. the council analyses the laws and regulations on climate change, the reputation of the group, and the supply chain with the support of relevant departments of the company. Then, the council identifies and manages specific activities for managing important climate change risks and opportunities during the business including planning and operation of data centers. The council also evaluates the performance of such activities of managing the major risks and opportunities. Based on the evaluation, improvement measures are reviewed for more effective management and major performances are communicated with the public through corporate sustainability reports every year. Specifically to respond to climate related changes, the council has established 'Carbon Zero Initiative' for corporate wide eco-friendly management. We analyze risks and opportunities of our business including service development, worksite operation, R&D, and finance, etc. Carbon Zero Initiative is a strategy to offset the amount of GHG emissions. To achieve carbon neutrality, we will ① reduce GHG emissions at most, ② join RE100, and ③ expand eco-friendly partnerships. [Examples of risks and opportunities] 1. Physical risks and opportunities Natural disasters such as floods, droughts, and forest fires increase, and physical risks are increasing due to climate change, which directly affects the financial performances of Samsung SDS. Such physical risks may damage data centers, destroy electronic data or cause malfunctions related to the IT services for the client of Samsung SDS. Samsung SDS operating a risk management system which facilitate the cooperation of the Data Center Innovation Team and the ESG council in the area to enable prompt and effective handling of physical damage due to natural disasters. 2. Transitional risks and opportunities As the international climate negotiations under the UNFCCC strengthens global ambition on managing greenhouse gas emissions along with adaptation to climate change, Korean government has also tightened regulations on climate change. In 2018, amendments to the 2030 Greenhouse Gas Roadmap of Korea have been announced to increase domestic emissions reduction targets in various industrial sectors. Samsung SDS monitors these global and domestic changes in GHG-related regulations, which accelerate the company to come up with progressive set of actions to reduce GHG emissions along with the introduction of more resilient and adaptive data centers. [Examples of actions for risks] 1. Transitional risk As the global climate change and sustainable management standards are strengthened, Samsung SDS defines them as potential risks. For instance, we voluntarily implemented UN SDGs (Sustainable Development Goals), including the response to climate change. In addition, Samsung SDS has established a 'Carbon Zero Initiative' strategy to proactively manage environmental impact such as increased demand on data center energy and GHG in order to achieve a sustainable business. 2. Physical risk To improve the vulnerability of the data center to climate change and to improve its resiliency, Samsung SDS has acquired and continuously managed its environmental management system (ISO14001) and green certification at its data centers. In addition, Samsung SDS strengthens the integrated monitoring system over infrastructure, security facilities and data center management and conduct activities in response to climate change risks when selecting new data center locations.

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	As our Code of Conduct states that "We comply with all laws and ethical standards," Samsung SDS adheres to laws that we are subject to. Climate-related regulation is no exception. We monitor our adherence to the current regulations through ISO14001, certified Environmental Management System. Risk related to carbon emission has not been substantive for Samsung SDS for we are a ICT services company; we are not asset-intensive nor we are not operating in a carbon-intensive industry. Therefore, we are not subject to the same level or speed of regulatory change as companies in high-emitting sectors. Samsung SDS is generally only required to report emissions and energy consumption. With compliance to the Korean Emission Trading Scheme, Samsung SDS reports greenhouse gas emissions. The government allocates carbon emission quota for each corporate. Although quota can be bought and sold, we recorded greenhouse gas emissions that were about 9% lower than the government quota through active management activities. As approximately 90% of GHG emissions is generated from our data centers, we have a team to be responsible for data center operation and management along with climate change mitigation strategy. We established a GHG inventory system to aggregate GHG emissions and energy consumption of all worksites. Samsung SDS also supports TCFD and analyzed climate change risks. GHG Emissions Trading Scheme could be a financial risk which may provoke the purchasing cost of an increase of carbon credits purchase cost, investment in GHG reduction facilities and verification. Particularly, carbon credits are expected to be insufficient despite the carry-over from the previous year due to a 10% paid allocation of carbon credit in Phase 3. The current carbon credit price based on the 'RCP 8.5 and IEA policy standard Scenario' is a risk. However, Approximately 82,500 KRW/ton of extra spending is anticipated in order to achieve the goal of Carbon Net Zero Initiative by 2050.
Emerging regulation	Relevant, always included	Samsung SDS must comply with current regulations as mentioned above and emerging regulations in order to comply with our Code of Conduct, "We comply with all laws and ethical standards." We especially have an eye on climate-related regulation as this is an area that has become a more important issue in recent years. Samsung SDS is a global company operating 68 offices worldwide. Therefore, we monitor regulations including climate change related regulations especially in which our offices are located we do not run carbon-intensive business. Examples of emerging regulation we are monitoring are global carbon tax and carbon border adjustment mechanism which already have been implemented to some countries around the globe. Although approximately 90% of our GHG emissions are from data centers in Korea and are regulated by K-ETS, Samsung SDS closely monitors such regulations due to logistics service, one of our business domains. Samsung SDS' logistics business (4PL) is not directly involved with transportation, we do pay close attention to carbon emissions of our suppliers/partners. Further, we make various company-wide efforts to reduce carbon emissions and save energy.
Technology	Relevant, always included	Technology related risk is mainly related to our data centers where about 90% of our GHG emissions occurring. We expect data center outsourcing business to expand in the era of the 4th Industrial Revolution, and, therefore, we are preparing to improve our energy efficiency of our data centers. 1) Free cooling system: Cooling server rooms is critical in terms of energy efficiency of data center. In order to avoid the risk of increased cooling energy in data centers due to climate change and global warming, free cooling system and free air cooling system have been implemented to our data centers. We also have been optimizing through the separation and containment of cold and hot aisles within the server room and through the minimization of cool air leaks. Chuncheon Data Center is situated in Chuncheon, the coldest area among data center locations. Cool air of Chuncheon directly flows into the server room for 9 months throughout the year, which dramatically decreased its consumption of cooling power. In addition, high-efficiency air-cooled chillers and 99% high-efficiency UPS were adopted and power transformation steps were reduced to conserve the energy use of infrastructure equipment to ultimately reach a PUE level of 1.2, the highest-ever recorded in Korea. 2) Renewable energy: The company utilizes a wide range of renewable energy-based energy resources such as solar water heating, photovoltaic power generation, geothermal cooling/heating system, fuel cell technology, natural lighting, geothermal heat pump, etc. to meet the energy needs of data centers. Especially we are expanding the use of clean energy by installing photovoltaic system and solar water heating systems on rooftops of the data centers. Sangam Data Center saves up to KRW 140 million in operating expenses annually by applying a 400RT geothermal heat pump that uses groundwater that has very small temperature changes throughout the year. Samsung SDS continues to improve PUE by expanding the use of renewable energy, implementing high-efficiency power facilities, controlling the number of AHU (Air Handling Unit) using CFD (Computational Fluid Dynamics), and exploring optimal cooling conditions through machine learning. Samsung SDS improves energy efficiency through the construction and operation of eco-friendly data centers. Corporate reputation, market power, and corporate value can be strengthened when satisfying stakeholders' increasing demands for low-carbon data centers.
Legal	Relevant, always included	Samsung SDS adhere to all laws and regulations as addressed the above. Therefore, understanding regulation and risks is also a major consideration to us. To date, Samsung SDS has not had climate-related litigation, nor do we believe we have financial liability for causing climate change due to the nature of our business, but we continue to re-assess the potential risks which might cause legal issues. There can be a risk for excessive GHG emissions; violating GHG Target Management or ETS. However, we believe that Samsung SDS has low potential of violating such laws for we are a professional services company not operating in a high-intensive industry. Regardless, we monitor and control our emissions closely. Another risk is related to our data center. For it is our one of business domain to provide IT services, physical damage at the data centers is potential consideration. Samsung SDS to fail to meet the terms of contracts. Due to climate change, chance of natural disasters causing physical damage to the data centers may increase in the future. Thus, the contractual terms for IT services and procurement of Samsung SDS may need to be reviewed to avoid potential legal conflict with the client or suppliers when the physical damage related to natural disasters affect the quality of the IT services of Samsung SDS.
Market	Relevant, always included	As an IT services company, understanding market expectations is critical to success and to protect shareholder values. Climate change has resulted in an increase of social demands to improve resource utilization efficiency related to carbon emissions such as consumables, raw materials, and energy. Therefore, Samsung SDS is in the process of developing safer, resilient and energy-saving data centers to satisfy those demand of the market. We have established PMS (Power Management System) to monitor IT equipment usage and data center facility usage in real time for efficient energy management to measure, evaluate, and manage energy usage for each sector, while monitoring the results of various energy efficiency improvement activities.
Reputation	Relevant, always included	Reputation risk is highly relevant to Samsung SDS as it may affect our business because we are an IT service provider that talent attraction and client trust are most considerable. Thus, hiring highly skilled individuals, being innovative, being able to deliver services and solutions, and being a good corporate citizen all matter to us. Therefore, climate-related risks is also important and relevant. Samsung SDS considers that there is correlation between climate change management and corporate reputation. Although Samsung SDS is not considered a high-risk industry, we do continue to expand our efforts to be a leading ICT service provider. We are an IT services company, are not asset-intensive, and therefore are not subject to any substantive regulations. However, we continue to innovate to improve how we manage carbon and energy internally, and also helping companies solve their sustainability and climate-related risk problems. As of the social demands for companies to be environment-friendly, Samsung SDS continues to evolve to meet our shareholders' expectations.
Acute physical	Relevant, always included	Acute physical risks exist primarily because we are an IT service provider which have data centers. This type of operational risks are beyond our control. While not the only driver of disruption, extreme weather events have the potential to disrupt operations by impacting our people and our locations. For example, our facilities (e.g., data center) might be affected by extreme weather event which may impair our ability to maintain service to clients. Such interruption may cause system error, power outage, and more. For in case of such natural disaster (e.g., flooding, typhoons, severe droughts, etc.) we have established emergency and disaster preparedness and response guide and system, and designed measures to protect major facilities such as data centers to minimize risks of such events and to ensure the safety of our people. Especially, we have tried our best to prevent the spread of disease under the unprecedented pandemic, COVID-19, situation. We organized emergency response system, established response process for emergency situations, have operated in-house quarantine center and resided medical staff, and prepared contingency plan. We have developed IT solutions (e.g., Virtual Desktop Infrastructure, in-house collaboration solutions, quarantine self-survey and guide through chatbot, etc.) to work from home to protect our people and to provide convenient work environment. Further, because mutual growth is one of values to pursue, we have been providing quarantine supplies (e.g., masks, sanitizers, etc.) to our suppliers/partners, and offering our collaboration solutions to SME suppliers/partners for free.
Chronic physical	Relevant, always included	Risks caused by climate change is inevitable to all. Samsung SDS, too, recognizes the issue, and considers ways how to respond. We recognize that conditions change over time and therefore monitor climate change trend (especially global warming) or energy and water scarcity, but these have not substantively impacted us to date. Global warming caused by climate change may affect the operational cost of our data centers. Cooling a server room consumes the most energy to operate a data center. Result of our internal analysis shows a correlation between global warming and data center operation cost; energy cost rises by 1.1% when 1°C increases. That is, cooling cost increases significantly as global warming continues to rise the overall global temperature. If the average temperature rises by 2°C, the energy cost could increase by about 500 million won per year, and if the average temperature rises by 4°C, the cost will increase by about 800 million won.

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?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Current regulation	Carbon pricing mechanisms

Primary potential financial impact
Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
Samsung SDS is subject to the allocation of GHG emission allowances under the Emission Trading Scheme of Korea. Annually Samsung SDS should submit emission allowances to the Korean government in accordance with the actual GHG emissions verified each year. Therefore, it is necessary to reduce GHG emissions which accelerate the investment in GHG reduction and energy saving activities in order to reduce the compliance cost of purchasing emission allowances from the carbon market in Korea. In case of failure to fulfilling the required amount of carbon credit, there is a fine posed by the government corresponding to three times the average price of the carbon credit in the current carbon market in accordance with the "Enforcement Decree of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits."

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
0

Potential financial impact figure – maximum (currency)
1514848500

Explanation of financial impact figure
The implementation of the Emission Trading Scheme has the financial risk of the purchase cost of allowance or the imposition of fines. Our last year's GHG emissions was 101,882 tons, and GHG emissions may increase up to 10% each year. In this case, 10% increase in GHG emissions corresponds to roughly 10,000 tCO2eq, and it will have a financial impact of up to KRW 1.6 billion: GHG emissions over quota 16,665 tons x (price of Korean Allowance Unit 18,600 KRW/tCO2 + fine 72,300)

Cost of response to risk
400000000

Description of response and explanation of cost calculation
Free cooling system(310 million) + solar water heating (90 million) = KRW 400 million

Comment
Samsung SDS responds to the Emission Trading Scheme by actively implementing greenhouse gas emission reduction activities centered on products and business sites. In 2021, Samsung SDS reduced GHG emissions by 2,733.35 tCO2eq in 2021 through free cooling system, solar water heating, and use of renewable energy (solar power and geothermal energy).

Identifier
Risk 2

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Storm (including blizzards, dust, and sandstorms)

Primary potential financial impact
Decreased asset value or asset useful life leading to write-offs, asset impairment or early retirement of existing assets

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
Physical impacts of climate risk in Korea take the form of increased frequency and severity of storms and flooding. This could lead to blackout or other forms of problems regarding energy supply, temporary closure of data centers, partial destroy of electronic data and/or delay of delivering timely IT services to the client. For example, frequency of replacing data center air filtration can be increased due to yellow dust and micro-dust caused by global warming and use of fossil fuel. At the same time, such dust may decrease power generation of solar power may decrease due to lack of sunlight, which in turn results in the increased consumption of grid electricity which leads more electricity cost as well as carbon cost for more GHG emissions.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
26041000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Estimated financial implications of the risk before action taken (26,040 million KRW) is based on the assumption that the corporate asset value would drop 0.4% if the 2 ℃ of global warming due to climate change (reference: Green European Foundation, GEF). The estimated risk is 26,041 million KRW, 0.4% of the corporate asset value of Samsung SDS.

Cost of response to risk
17000000000

Description of response and explanation of cost calculation
We invested in energy saving facilities starting from end of 2016 and carried out 27.6 billion KRW in 2017. In addition to investment, it is also pushing for various activities such as improvement of operation.

Comment
Based on the scenario analysis done by Samsung SDS, climate change may affect the general O&M cost for data centers increased by 10% to take precautionary and protective measures to deal with potential damage from natural disasters. When the data center maintenance cost rises by 10% due to the previously mentioned risks, an additional cost of about KRW 1.7 billion per year can be incurred.

Identifier
Risk 3

Where in the value chain does the risk driver occur?
Downstream

Risk type & Primary climate-related risk driver

Reputation	Increased stakeholder concern or negative stakeholder feedback

Primary potential financial impact
Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
Samsung SDS is required by a variety of stakeholders to disclose its policy and response related to climate change, which is directly linked to the company's reputation. As non-financial information, such as CDP and DJSI, is used as a major criterion of the company's investment value, Samsung SDS recognizes the need to implement management activities from a long-term and active perspective in consideration of ESG factors. If response to climate change and information disclosure are insufficient, there is a risk withdrawing investment and losing customers. Recently, the National Pension Service declared that companies with inadequate ESG responses would be excluded from investment. If Samsung SDS does not properly manage non-financial factors such as climate change response and greenhouse gas reduction, it risks falling market value of its stock price due to withdrawing investment.

Time horizon
Medium-term

Likelihood
More likely than not

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
686546630000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Corporate reputation is an intangible factor and it is practically difficult to find a reliable methodology for converting it to quantitative financial value. However, it is anticipated that more investors will make investment decisions based on socio-environmental factors as well as financial value in the future. Therefore, we estimated the financial impact from socio-environmental factors assuming scenarios in which investors would be excluded from new investments or withdrawn from existing investments due to the deteriorating reputation associated with climate change. This could include loss of client relationships/business, failure to secure new business and/or reduced shareholder value. If the National Pension Service retrieves 10% of its current share of stock, there could be a financial impact of around KRM 687 billion KRW. (Samsung SDS stock price in 19th July 2022: 132,500 KRW x Number of shares of the National Pension Service: 5,181,484 = 687 billion KRW)

Cost of response to risk
448000000

Description of response and explanation of cost calculation

Samsung SDS is strongly committed to corporate actions related to climate change. Our lines of business have specific and measurable climate-related goals and metrics. To communicate with stakeholders and disclose environmental engagements, we publish sustainability report and participate in CDP every year. We conduct materiality assessment every year to analyze our key sustainability issues. The result shows that the responding to climate change issue is becoming more important topic every year. We support TCFD and disclose information as recommended. The cost of management is calculated based on the sum of yearly-salary for 3 staffs in charge of relevant works (248 million KRW/year) and consultation fee for sustainability report and materiality assessment (200 million KRW/year).

Comment

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?
Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Opp1

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Use of more efficient modes of transport

Primary potential financial impact
Reduced direct costs

Company-specific description
Samsung SDS offers logistics services globally based on our unique IT capabilities such as Cello (Integrated logistics platform that is the basis of Samsung SDS' global logistics services). It operates global supply chain with integrated logistics outsourcing system for 4PL logistic services. Besides Cello, Samsung SDS has developed other IT-based services including Cello Square (One-stop platform for global e-Commerce logistics), Cello Trust (Block Chain-based platform for supply chain traceability), Cello Digital Services (IT-based logistics service package specialized for each logistics area). These services contribute to low-carbon logistics of Samsung SDS itself and other client logistic companies by achieving efficiency in terms of energy and resources through saving time for logistics and saving fuel for logistics. As climate change accelerate the transformation into low-carbon logistics, Samsung SDS is further developing the feature of low-carbon and zero-carbon logistics by periodical improvement of these IT service platform.

Time horizon
Medium-term

Likelihood
Virtually certain

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
2242000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
While four major logistic services of Samsung SDS (Cello, Cello Square, Cello Trust, Cello Digital Services) as a whole have a benefit of saving resources and energy, the exact degree of such benefit is subject to fluctuation depending on the specific circumstances of installing and operating the solutions. However, as a general level, installing these 4 IT platforms in a harmonious manner may result in 10 to 20% increased efficiency in saving fuel for logistics based on the internal analysis of Samsung SDS. As Samsung SDS consumes 14,185 kilo liters of diesel in 2020 for downstream logistic business which costs roughly 20,176 million KRW in 2021. If we suppose that 10% of the logistics cost is saved in 2020 by installing this technology, the saved cost for Samsung SDS in 2021 is considered as 1,576,196 kilo liters of diesel which result in the saved cost of 2,242 million KRW.

Cost to realize opportunity
68436000000

Strategy to realize opportunity and explanation of cost calculation
Strategy of Samsung SDS for realizing this opportunity is continuously improving the quality of these IT services including Cello, Cello Square, Cello Trust, Cello Digital Services. R&D cost for reviewing and improving these services occupies roughly 1.2% of the revenue of Samsung SDS' logistics business (5,702,982 million KRW). Therefore, R&D cost for logistics IT services of Samsung SDS corresponds to 68,436 million KRW.

Comment
The cost of participating in ETS market is 550,000 KRW per year.

Identifier

Opp2

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Use of more efficient modes of transport

Primary potential financial impact
Reduced direct costs

Company-specific description
Based on the internal research in 2020, Samsung SDS regards climate change as one of the important drivers underlying the social demand for advanced and eco-friendly data center. In this regard, Samsung SDS has decided to expand the construction and operation of eco-friendly data centers with improved energy efficiency and better security, safety and resiliency. Samsung SDS is operating 17 data centers worldwide and these data centers are being improved based on growing social demand for eco-friendly data centers with low-carbon energy, high level of energy independency, and resiliency to extreme weather events among other advanced features. By doing this, we expect that corporate reputation, market power, and corporate value of Samsung SDS will be strengthened as well as satisfying stakeholders' increasing demands for low-carbon data centers.

Time horizon
Medium-term

Likelihood
Virtually certain

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
400000000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Samsung SDS is applying climate technology to existing data operations and new data centers. Samsung SDS closely analyzes utilities such as air conditioning, electricity, firefighting, and security on data centers, considering the impacts of abnormal temperatures or disasters caused by climate change. Additionally, we strengthen the integrated monitoring system over infrastructure, security facilities and data center management and conduct activities in response to climate change risks when selecting new data center locations. Samsung SDS assesses the impact of largely two categories of data center improvements, namely measures for 1) GHG mitigation and 2) adaptation. In our internal research, each category of mitigation and adaption improvement may account for 5% increase of the revenue of Samsung SDS related to ITO and cloud services. Therefore, as the revenue for cloud and ITO is 3,942,131 million KRW, potential increase of revenue thanks to these improvements for data centers may be up to roughly 400,000 million KRW.

Cost to realize opportunity
214000000

Strategy to realize opportunity and explanation of cost calculation
Major activities of improving data center related to climate change include advancement of PUE (Power Usage Effectiveness) indicators by expanding the use of renewable energy, implementing high-efficiency and security measures for power facilities, controlling the number of AHU(Air Handling Unit) using CFD (Computational Fluid Dynamics), and exploring optimal cooling conditions through machine learning. The expected cost for doing major activities are 64 million KRW for installing solar-power generation facility, 150 million KRW as precautionary measures for adapting climate change (upgrading the system of controlling the data center) at Sangam data center. In total, 214 million KRW is expected for doing the mitigation and adaption improvement activities for the year of 2021.

Comment

Identifier
Opp3

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Products and services

Primary climate-related opportunity driver
Development and/or expansion of low emission goods and services

Primary potential financial impact
Increased revenues through access to new and emerging markets

Company-specific description
The demand for integrated ESG management and reporting solution for companies are expected to increase as Korean government has recently introduced a plan to adopt legal requirement for companies to manage their ESG performances in alignment with a variety of the ESG standards and frameworks. Based on the years of experience and knowledge of Samsung SDS, the company sees this as a business opportunity and reviewing the development of one centralized tool where client companies can manage, track and report ESG data and strategies. As more companies are recognizing the need for reliable systems to effectively manage and report the ESG data, Samsung SDS can provide a broad solution complete with the latest industry frameworks and standards to assist clients through the ESG reporting process, help manage sustainability risk and provide relevant insights to internal and external stakeholders.

Time horizon
Medium-term

Likelihood
Virtually certain

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
132333000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Last year, over 100 companies disclosed their ESG related data through corporate sustainability reports, and the number is expected to be increased as Korean Government announced that all listed companies in Korea are required to open their ESG data by 2025. That is, it is soon to be a legal requirement to disclose corporate ESG data including their targets, performances, activities related to ESG indicators. In this context, our annual revenue is expected to be increased, up to 132,333 million KRW, if we occupy 1/3 of the Korean ESG platform market with our ESG platform.

Cost to realize opportunity
580000000

Strategy to realize opportunity and explanation of cost calculation
We strategically aim to develop an ESG platform including the following features: 1) With the platform, corporate may better understand and manage their ESG goals/performances in accordance with the ESG indicators such as KCGS (Korea Corporate Governance Service), K-ESG (Korea ESG Standards), Sustainability Accounting Standards Board (SASB), Task Force on Climate-Related Financial Disclosures (TCFD) and United Nations Sustainable Development Goals (UN SDGs) and others. Further, the platform will allow defining and tracking client-specific corporate goals and KPIs. 2) The platform will allow manage ESG risks including climate-related issues by providing industry-specific analysis to assess, manage and report the risks. 3) Samsung SDS ESG platform is to identify themes, understand relationships and inter-dependencies, and track ESG progress and status. The cost for developing these solutions will roughly be 414 million KRW per year in development phase and 166 million KRW per year in operation and improvement phase.

Comment

C3. Business Strategy

C3.1

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

Row 1

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

Publicly available transition plan
Yes

Mechanism by which feedback is collected from shareholders on your transition plan
We have a different feedback mechanism in place

Description of feedback mechanism
Currently, transition plan is shared with Samsung affiliates twice a year updating progresses. Samsung SDS has a plan to publically disclose the transition plan to all stakeholders within 6 month period.

Frequency of feedback collection
More frequently than annually

Attach any relevant documents which detail your transition plan (optional)
Samsung-SDS-TCFD-Report-2022.pdf

Explain why your organization does not have a transition plan that aligns with a 1.5°C world and any plans to develop one in the future
<Not Applicable>

Explain why climate-related risks and opportunities have not influenced your strategy
<Not Applicable>

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	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, qualitative and quantitative	<Not Applicable>	<Not Applicable>

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	<Not Applicable>	Parameters: Risks and opportunities (government regulations, natural disasters, climate technologies, carbon price, climate changes, demand forecasting, market, reputation) and business impact analysis factors (financial impact, management strategy, product and services, worksites, R&D, and value chain) Assumption: - Climate change: 50 million KRW increase when 2°C increase, 80 million KRW increase when 4°C increase - Natural disasters: 170 million KRW increase in DC operation cost by 10% - Analytical choices: 2021~2050
Transition scenarios: IEA SDS	Company-wide	<Not Applicable>	Parameters: Risks and opportunities (government regulations, natural disasters, climate technologies, carbon price, climate changes, demand forecasting, market, reputation) and business impact analysis factors (financial impact, management strategy, product and services, worksites, R&D, and value chain) - Assumption: Additional cost (approximately 82,500 KRW/ton) to achieve 2030 2°C scenario target - Analytical choices: 2021~2030

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

Samsung SDS conducted qualitative and quantitative scenario analysis on risks related to climate change. As the Korean government announced that Korea will reduce its GHG emissions by 40% until 2030 to ultimately reach net zero, carbon related regulations will inevitably be tightened, and stress on the Korean industries is expected to aggravate. To this end, the climate-related risk scenario is analyzed based on the NDC, national policies and target for climate change issues. The GHG emission reduction strategy and target are analyzed based on RCP 2.6 and BAU Scenario, whereas the emission amount was analyzed based on RCP 8.5. Boundary Samsung SDS has 2 climate change risk scenarios, ① physical and ② transition such as regulations, markets, and technology levels, and the environmental risks are analyzes based on global standards including TCFD and CDP. The risks of 2 scenarios are managed in comparison with the risks of 'RCP 2.6 and IEA's Sustainable Development Scenarios (SDS)' and 'RCP 8.5 and IEA Scenarios based on the current status.' Timescales The timescales are divided into short-term (up to 5 years), medium-term (up to 10 years), and long-term (up to 20 years), and risks and opportunities are analyzed by each timescale. Risk Types Samsung SDS defined risks and opportunities into 6 categories: regulation, technology, acute physical, chronic physical, market, and reputation. For business impact analysis, 6 topics are selected: financial impact, management strategy, product and service, business site, R&D, and value chain.

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

· Chronic physical: increase in cooling cost at data centers due to global warming - KRW 500 million annually when 2℃ rises - KRW 800 million annually when 4℃ rises · Acute physical: increase in facility management cost due to climate change - KRW 170 million annually when data center maintenance cost rises by 10% based on RCP 8.5 Scenario · Regulation: GHG-related regulations of Korean government - Additional cost, KRW 82,500/ton, to achieve Well Below 2℃ target by 2030

C3.3

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Factors including increased understanding and awareness about climate change and its causes and effects, as well as policy, reputation and financial factors are driving increased client demand for our low-carbon products and services. Based on the risk and opportunity analysis, we figured out climate change adds the value of eco-friendly data center. For that reason, we set our corporate strategy for 2030 about building safe and environmentally-friendly data center and improving safety, resiliency, and energy and information security of existing data center. Activities directly related to climate change include digital monitoring system for energy consumption, energy efficiency improvement measures and reduction in unnecessary usage of energy, etc.
Supply chain and/or value chain	Yes	As our stakeholder's interest in climate change grows, we recognize the need to reduce GHG emissions in our value chain of suppliers as well as our own operation. For many of our suppliers, climate-related risks and opportunities are mainly related to the GHG emissions of vehicles for logistics. As global movement to low-carbon and green logistics are being witnessed, demand of our suppliers is growing for managing their fuel consumption and usage of low-carbon vehicles. Samsung SDS is planning to develop an initiative within the next 3 years to accelerate suppliers of value chain to enhance their capability in the area of low-carbon logistics.
Investment in R&D	Yes	Samsung SDS continuously conducts researches on climate change in order to enhance the competitiveness of our business. The studies are mainly related to IT solutions related to energy use efficiency, such as corporate ESG monitoring solutions, smart building solutions, and intelligent factory solutions. From 2020 to the years to come, Samsung SDS has decided to do intensive R&D activities for climate-change related areas. There is a close link between climate change and risks and opportunities of some IT solutions related to energy management and digital transformation of the companies.
Operations	Yes	Physical risks with implications for our operations include increased frequency and severity of storms with related flooding. IT services is exposed to the risk of natural disasters caused by abnormal weather conditions. Samsung SDS identified important physical risks such as power outages caused by natural disasters, and manages risks by focusing on risk hedges. One example is the uninterruptible power supply (UPS) which is being used as the emergency power generator to minimize the damage in a blackout situation. Samsung SDS also installed solar panel for electricity generation to enhance our capability in terms of energy independence and low carbon energy. For the time period from the year of 2020 to 2030, Samsung SDS will increase our renewable energy output to manage these risks in short- to medium term.

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	Revenues Direct costs Capital expenditures	Samsung SDS considers climate-related risks and opportunities in our financial planning under the umbrella of our business continuity and resilience planning. However, it is not substantive enough for us yet to change our financial planning based on expectation of acute weather events or business disruption. Climate-related opportunities may influence our revenue forecast for Samsung SDS plans to pursue data and digital ESG management with customers in the era of the 4th industrial revolution. We will continuously share information and insights with experts to quickly identify changes brought by ESG and will promote long term ESG management based on digital technologies. To effectively respond to the growing demands for ESG management in the global market, Samsung SDS plans to build ESG platform that digitizes ESG management processes, including strategy, information management, monitoring, task management, and disclosure management. The data-based digital ESG platform will be launched on a pilot at the end of 2021. Samsung SDS plans to attempt a more structured and systematic approach to ESG management. Note that due to the fast-moving nature of IT industries we serve, we believe climate-related risks are less relevant. Although we acknowledge such risks as we analyzed based on TCFD recommendation, we have considered plans to minimize such risks as possible. Our Risk Management Council is responsible to manage and respond to the corporate-wide risks including that of environment change. Samsung SDS Major GHG Reduction Strategies include 1) establishment of integrated energy management system, 2) construction of eco-friendly data centers, 3) expansion of renewable energy use, 4) server rooms and IT equipment energy efficiency improvement. For the year of 2020, to reduce GHG emissions, Samsung SDS performs various activities such as establishing an integrated energy management system, expanding eco-friendly data centers, implementing energy-efficient IT equipment and infrastructure, adopting renewable energy sources. Performance of such mitigation activities (monitored in amount of energy savings or tone of CO2 reduced) as well as cost for doing the activities are assessed quarterly and compiled and archived on an annual basis. That is, Samsung SDS are preparing to mitigate risks while we considers impact of such risk is low although we recognize this risk to highly likely to occur.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's transition to a 1.5°C world?
Yes

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's transition to a 1.5°C world.

Financial Metric
OPEX

Percentage share of selected financial metric aligned with a 1.5°C world in the reporting year (%)
0.1

Percentage share of selected financial metric planned to align with a 1.5°C world in 2025 (%)
0.6

Percentage share of selected financial metric planned to align with a 1.5°C world in 2030 (%)
1.6

Describe the methodology used to identify spending/revenue that is aligned with a 1.5°C world
Estimated REC and PPA prices by 2030 to align with a 1.5°C world; renewable energy price compared to operating expense

C4. Targets and performance

C4.1

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

C4.1a

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

Target reference number
Abs 1

Year target was set
2021

Target coverage
Company-wide

Scope(s)
Scope 1
Scope 2
Scope 3

Scope 2 accounting method

Location-based

Scope 3 category(ies)
Category 1: Purchased goods and services
Category 2: Capital goods
Category 4: Upstream transportation and distribution
Category 6: Business travel
Category 7: Employee commuting
Category 15: Investments

Base year
2021

Base year Scope 1 emissions covered by target (metric tons CO2e)
3488

Base year Scope 2 emissions covered by target (metric tons CO2e)
91795

Base year Scope 3 emissions covered by target (metric tons CO2e)
5890563

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)
5985840

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 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)
100

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes
100

Target year
2035

Targeted reduction from base year (%)
18.3

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]
4890431.28

Scope 1 emissions in reporting year covered by target (metric tons CO2e)
3354

Scope 2 emissions in reporting year covered by target (metric tons CO2e)
98528

Scope 3 emissions in reporting year covered by target (metric tons CO2e)
6497114

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)
6598996

% of target achieved relative to base year [auto-calculated]
-55.9750884583062

Target status in reporting year
Underway

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

Please explain target coverage and identify any exclusions
In 2021, Samsung SDS committed to reduce absolute Scope 1 and 2 emissions by 60% by 2030 and net zero by 2035 against a 2021 baseline. For Scope 3, Samsung SDS analyzed Scope 3 categories and measured applicable categories in 2021. Samsung SDS committed to reduce the applicable Scope 3 emissions by 17% by 2030 and 25% by 2035.

Plan for achieving target, and progress made to the end of the reporting year
Changing electricity source of energy to renewable energy Improving data center energy efficiency Running various campaigns to inspire employees' awareness (ex. paperless campaign, etc.)

List the emissions reduction initiatives which contributed most to achieving this target
<Not Applicable>

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Year target was set
2021

Target coverage
Company-wide

Scope(s)
Scope 1
Scope 2
Scope 3

Scope 2 accounting method
Location-based

Scope 3 category(ies)
Category 1: Purchased goods and services
Category 2: Capital goods
Category 4: Upstream transportation and distribution
Category 5: Waste generated in operations
Category 6: Business travel
Category 7: Employee commuting
Category 15: Investments

Intensity metric
Metric tons CO2e per unit revenue

Base year
2021

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)
0.076

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)
2.02

Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)
53.4

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)
54.3

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure
100

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure
100

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure
100

% of total base year emissions in all selected Scopes covered by this intensity figure
100

Target year
2035

Targeted reduction from base year (%)
18.3

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]
44.3631

% change anticipated in absolute Scope 1+2 emissions
100

% change anticipated in absolute Scope 3 emissions
17

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)
0.07

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)
1.98

Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)
47.7

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)
48.4

% of target achieved relative to base year [auto-calculated]
59.3746540671638

Target status in reporting year
Underway

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

Please explain target coverage and identify any exclusions
In 2021, Samsung SDS committed to reduce absolute Scope 1 and 2 emissions by 60% by 2030 and net zero by 2035 against a 2021 baseline. For Scope 3, Samsung SDS analyzed Scope 3 categories and measured applicable categories in 2021. Samsung SDS committed to reduce the applicable Scope 3 emissions by 17% by 2030 and 25% by 2035.

Plan for achieving target, and progress made to the end of the reporting year
- Scope 1 : Offset including afforestration and change corporate-owned vehicles to electric - Scope 2: 1) REC and PPA purchase, 2) data center operation effciency investment (liquid cooling, ups-less)

List the emissions reduction initiatives which contributed most to achieving this target
<Not Applicable>

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?
Target(s) to increase low-carbon energy consumption or production
Net-zero target(s)
Other climate-related target(s)

C4.2a

(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.

Target reference number
Low 1

Year target was set
2021

Target coverage
Company-wide

Target type: energy carrier
Electricity

Target type: activity
Consumption

Target type: energy source
Renewable energy source(s) only

Base year
2021

Consumption or production of selected energy carrier in base year (MWh)
245

% share of low-carbon or renewable energy in base year
0.13

Target year
2035

% share of low-carbon or renewable energy in target year
97.5

% share of low-carbon or renewable energy in reporting year
0.13

% of target achieved relative to base year [auto-calculated]
0

Target status in reporting year
Underway

Is this target part of an emissions target?
Yes, this target is about energy saving and this target is part of the GHG mitigation target in carbon intensity for Samsung SDS specified in C.C.4.1b of this document

Is this target part of an overarching initiative?
RE100
Science Based Targets initiative

Please explain target coverage and identify any exclusions
Target is based on financial year reporting: base year is 2021 and target year is 2035.

Plan for achieving target, and progress made to the end of the reporting year
- Scope 1 : Offset including afforestration and change corporate-owned vehicles to electric - Scope 2: 1)REC and PPA purchase, 2)data center operation effciency investment (liquid cooling, ups-less)

List the actions which contributed most to achieving this target
<Not Applicable>

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number
Oth 1

Year target was set
2021

Target coverage
Company-wide

Target type: absolute or intensity
Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Low-carbon vehicles	Percentage of battery electric vehicles in company fleet

Target denominator (intensity targets only)
<Not Applicable>

Base year
2021

Figure or percentage in base year
0

Target year
2030

Figure or percentage in target year
100

Figure or percentage in reporting year
0

% of target achieved relative to base year [auto-calculated]
0

Target status in reporting year
Underway

Is this target part of an emissions target?
Yes

Is this target part of an overarching initiative?
EV100

Please explain target coverage and identify any exclusions
Target is based on financial year reporting: base year is 2021 and target year is 2030.

Plan for achieving target, and progress made to the end of the reporting year
We will replace all company vehicles to electric cars by 2030

List the actions which contributed most to achieving this target
<Not Applicable>

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
Int1

Target year for achieving net zero
2035

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 2 years

Please explain target coverage and identify any exclusions
Samsung SDS net zero target includes all global business sites: 62 sites in 40 countries.

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
Samsung SDS has a plan to plant over 20,000 trees by 2035 offsetting unabated emissions.

Planned actions to mitigate emissions beyond your value chain (optional)
We also have a plan to reduce carbon emission(Scope3) through our value chain utilizing logistics optimization a green procurement, etc.

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	1	351
To be implemented*	0	0
Implementation commenced*	1	106
Implemented*	5	485
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	Heating, Ventilation and Air Conditioning (HVAC)

Estimated annual CO2e savings (metric tonnes CO2e)
421

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
92000000

Investment required (unit currency – as specified in C0.4)
296000000

Payback period
4-10 years

Estimated lifetime of the initiative
16-20 years

Comment

We set temperature and humidity sensors in Server room and adjust to operating HVACs in Suwon DC. In 2021 We changed a high energy efficiency PAC(Package Air Conditionor) in Suwon DC.

Initiative category & Initiative type

Low-carbon energy generation	Solar PV

Estimated annual CO2e savings (metric tonnes CO2e)
106

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
30000000

Investment required (unit currency – as specified in C0.4)
500000000

Payback period
16-20 years

Estimated lifetime of the initiative
21-30 years

Comment
In 2022, we are under constructed Solar PV as 77kW in Suwon DC. And we have a plan to make Solar PV in Sangam DC by 2024.

Initiative category & Initiative type

Energy efficiency in production processes	Cooling technology

Estimated annual CO2e savings (metric tonnes CO2e)
351

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
100000000

Investment required (unit currency – as specified in C0.4)
210000000

Payback period
1-3 years

Estimated lifetime of the initiative
16-20 years

Comment
We are setting Pump invertor in Sangam DC by 2022. Last year, we also made awning screens and water mist at outdoor HVAC in ChunCheon DC.

Initiative category & Initiative type

Energy efficiency in buildings	Lighting

Estimated annual CO2e savings (metric tonnes CO2e)
18

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
5000000

Investment required (unit currency – as specified in C0.4)
70000000

Payback period
11-15 years

Estimated lifetime of the initiative
21-30 years

Comment
We have plan to set lighting sensor and change to LED in Sangam DC.

Initiative category & Initiative type

Energy efficiency in production processes	Fuel switch

Estimated annual CO2e savings (metric tonnes CO2e)
46

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
13000000

Investment required (unit currency – as specified in C0.4)
10000000

Payback period
<1 year

Estimated lifetime of the initiative
16-20 years

Comment
We set eletric water heaters for reducing LNG from boilers in Gumi DC. It helps cost saving and reduce GHG.

C4.3c

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

Method	Comment
Compliance with regulatory requirements/standards	ETS compliance Samsung SDS plans new GHG reduction project every year to respond to the target management system and continues to manage the existing GHG reduction project to reduce the cost of complying the requirement of K-ETS
Employee engagement	KPI of energy management group staffs As active participation of employees is essential in reducing of energy consumed in lighting, heating, and cooling, and promoting the use of energy saving devices, we encourage employees to voluntarily participate.
Internal incentives/recognition programs	We provide the bonus for finding energy saving items to all employee who are suggested.

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 (Information and communications)

Description of product(s) or service(s)
Our data centers are implemented with a comprehensive set of energy efficiency practices. Samsung SDS newly acquired Green Data Center Certification in 2022 satisfying the K-Taxonomy classification, Low-carbon Internet Data Ceneter Operation.

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 (Using indirect calculation method by measuring cooling system efficiency such as pPUE , CUE, WUE etc.)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
Cradle-to-grave

Functional unit used
individual data center

Reference product/service or baseline scenario used
global and local data centers

Life cycle stage(s) covered for the reference product/service or baseline scenario
Cradle-to-grave

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
2733.35

Explain your calculation of avoided emissions, including any assumptions
We calculate avoided emmisions by each technology adopted 1)Expansion of direct outdoor air introduction period 2)Shading device/water spray for outdoor chillers 3)Outdoor refrigerator condenser coil spraying

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
11

Level of aggregation
Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon
Other, please specify (Samsung SDS provides advanced logistics services on Cello, our integrated logistics platform. Our Cello solution allows our clients to optimize the routes and therefore minimize the carbon emissions during logistics process.)

Type of product(s) or service(s)

Other	Other, please specify (Efficient logistics services using Cello platform by route optimization, loading optimization)

Description of product(s) or service(s)
End-to-end logistics service covering international/inland shipping, warehouse management, and 4PL services including consulting and IT services. Cello covers all areas of logistics, including international transport, customs clearance, inland transport, warehousing, last-mile delivery (LMD), reverse logistics, etc. It also helps manage master data, contracts, invoicing, and others that are commonly required in logistics. On Cello, you can track the status of your shipments in real time while also having access to every function you need for global logistics, such as operation progress and indicators.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
No

Methodology used to calculate avoided emissions
<Not Applicable>

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
<Not Applicable>

Functional unit used
<Not Applicable>

Reference product/service or baseline scenario used
<Not Applicable>

Life cycle stage(s) covered for the reference product/service or baseline scenario
<Not Applicable>

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
<Not Applicable>

Explain your calculation of avoided emissions, including any assumptions
<Not Applicable>

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
58.8

Level of aggregation
Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon
Other, please specify (Manufacturing Environment Monitoring: Nexplant)

Type of product(s) or service(s)

Systems integration	Other, please specify (IT-based monitoring and management of air/water pollutants)

Description of product(s) or service(s)
Samsung SDS is working to develop an advanced Intelligent Factory business. To this end, we realize intelligence in all areas of manufacturing based on the Nexplant platform, which integrates new information technologies such as big data, AI, IoT, blockchain, and cloud. Nexplant provides an automatic control system for safe and smart operation by monitoring and controlling the facilities used in factories (electricity, air conditioning, water, wastewater, etc.) and enables real-time IT-based monitoring and management of air/water pollutants with its own state-of-the-art remote monitoring system. 20 workplaces of 7 companies use Samsung SDS' Nexplant platform to detect anomalies in real-time and predict failure to increase the facility operation rate, while improving quality by optimal control and analysis.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
No

Methodology used to calculate avoided emissions
<Not Applicable>

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
<Not Applicable>

Functional unit used
<Not Applicable>

Reference product/service or baseline scenario used
<Not Applicable>

Life cycle stage(s) covered for the reference product/service or baseline scenario
<Not Applicable>

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
<Not Applicable>

Explain your calculation of avoided emissions, including any assumptions
<Not Applicable>

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
0.83

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

Name of organization(s) acquired, divested from, or merged with
<Not Applicable>

Details of structural change(s), including completion dates
<Not Applicable>

C5.1b

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

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	Yes, a change in boundary	A new domestic office building, Tera Tower, was included into reporting boundary.

C5.1c

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

	Base year recalculation	Base year emissions recalculation policy, including significance threshold
Row 1	No, because the impact does not meet our significance threshold	Emission of Tera Tower is below 1% of the company's total emission.

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)
3354

Comment

Scope 2 (location-based)

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
98528

Comment

Scope 2 (market-based)

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
98528

Comment
We have same figure in location-based scope2 and market-based scope2.

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)
38755

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)
77435

Comment

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

Base year start

Base year end

Base year emissions (metric tons CO2e)

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)
6301689

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 CO2e)
339

Comment

Scope 3 category 6: Business travel

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
2177

Comment

Scope 3 category 7: Employee commuting

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
6980

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
69739

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

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
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
3354.053

Start date
<Not Applicable>

End date
<Not Applicable>

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 have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based
98531.01

Scope 2, market-based (if applicable)
<Not Applicable>

Start date
<Not Applicable>

End date
<Not Applicable>

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 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 CO2e)
38755

Emissions calculation methodology
Average product method
Average spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0.6

Please explain
Purchase amount of goods and services for sales x Average purchasing-related industry emission factor (tCO2e/KRW million)

Capital goods

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
77435

Emissions calculation methodology
Average product method
Average spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
1.19

Please explain
Purchase amount of goods and services for asset (KRW million) x average purchasing-related industry emission factor (tCO2e/KRW million)

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

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Samsung SDS did not have any other fuel and energy related activites that are not included in Scope 1 or 2.

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
6301689

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
96.99

Please explain
Weight of products transported by means of transportation (ton) x Distance of transportation (km) x Emission factor by means of transportation (e.g., kg CO2e/ton/km))

Waste generated in operations

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
339

Emissions calculation methodology
Waste-type-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0.01

Please explain
Amount by type of waste (e.g., ton) x Average emission factor by method (e.g., kg CO2e/ton))

Business travel

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
2177

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0.03

Please explain
Distance traveled by means of transportation (in-km) x Emission factor by means of transportation (t CO2e/person-km))

Employee commuting

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
6980

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0.11

Please explain
Number of employees x Ratio of use by means of transportation x Average commuting distance x Average number of working days x Emission factor by means of transportation (kg CO2e/transportation-km or kg CO2e/person-km))

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Samsung SDS includes leased assets in our Scope 1 and Scope 2 emissions reporting boundary.

Downstream transportation and distribution

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Samsung SDS did not lease to other entities in the reporting year.

Processing of sold products

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Samsung SDS did not have any physical intermediate products in the reporting year.

Use of sold products

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Samsung SDS did not have any GHG emitting goods and services sold in the reporting year.

End of life treatment of sold products

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Samsung SDS did not have any GHG emitting goods and services sold in the reporting year, therefore, not relevant to the category 12 emission.

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Samsung SDS includes leased assets in our Scope 1 and Scope 2 emissions reporting boundary.

Franchises

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Samsung SDS did not operate franchises in the reporting year.

Investments

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
69739

Emissions calculation methodology
Asset-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
1.07

Please explain
Reporting year sales of the investment target company x Emissions per unit of industry to which the investment target company belongs (kg CO2e/sales) x Equity ratio (%))

Other (upstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

Other (downstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

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
2

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
101882

Metric denominator
unit total revenue

Metric denominator: Unit total
49857

Scope 2 figure used
Location-based

% change from previous year
5

Direction of change
Decreased

Reason for change
Scope 1 and 2 location based emissions decreased by 5% . The reductions in emissions can be due to an emission reduction initiative as reported in relevant Scope in question C4.3b.

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	3320.172	IPCC Second Assessment Report (SAR - 100 year)
CH4	9.894	IPCC Second Assessment Report (SAR - 100 year)
N2O	23.987	IPCC Second Assessment Report (SAR - 100 year)

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Republic of Korea	3354.053

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
Suwon Data Center	529.707	37.25759	127.058865
Sangam Data Center	129.772	37.582909	126.886979
Gumi Data Center	193.761	36.1074	128.415101
Chuncheon Data Center	8.785	37.84664	127.701969
East Campus	758.108	37.516594	127.101056
West Campus	1473.544	37.516368	127.100359
Seoul R&D Campus	183.656	37.466143	127.022977
Communication Point (Node/AP)	0	37.25759	127.058865
Pangyo Logisitcs Campus	76.721	37.395863	127.108533
Giheung Tera Tower	0	37.2314	127.0709

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Republic of Korea	98528	0

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)
Suwon Data Center	43627	0
Sangam Data Center	26114.301	0
Gumi Data Center	8252.262	0
Chuncheon Data Center	10752.788	0
East Campus	1787.569	0
West Campus	4240.579	0
Seoul R&D Campus	854.435	0
Communication Point (Node/AP)	1417.36	0
Pangyo Campus	439.5	0
Giheung Tera Tower	1044.674	0

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?

Increased

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	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	5.05	Decreased	0.01	2021 Scope 1 and 2 emissions (256 MWh = 117.61 tCO2eq) 2020 Scope 1 and 2 emissions (245 MWh = 112.55 tCO2eq) = 11 MWh = 5.05 tCO2eq
Other emissions reduction activities	210.35	Decreased	0.22	2021 emission reduction activities : 2733 tCO2eq 2020 emission reduction activities : 2,523 tCO2eq
Divestment	0	No change	0	
Acquisitions	0	No change	0	
Mergers	0	No change	0	
Change in output	5776	Increased	6.06	GHG emissions increased due to increase in revenue. 2021 revenue increased by 24% compared to the last year.
Change in methodology	0	No change	0	
Change in boundary	1044	Increased	1.1	Giheung Tera Tower is included our boundary from 2021.
Change in physical operating conditions	0	No change	0	
Unidentified	0	No change	0	
Other	0	No change	0	

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?

Location-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	Yes
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	17230	17230
Consumption of purchased or acquired electricity	<Not Applicable>	0	216948.67	216948.67
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	2111	2111
Consumption of purchased or acquired cooling	<Not Applicable>	0	30313.15	30313.15
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	244.88	<Not Applicable>	244.88
Total energy consumption	<Not Applicable>	244.88	266603.12	266848

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	Yes
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
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Comment

Other biomass

Heating value
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Comment

Coal

Heating value
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Comment

Oil

Heating value
HHV

Total fuel MWh consumed by the organization
718

MWh fuel consumed for self-generation of electricity
718

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Comment
Testing emergency generators of data centers once a month

Gas

Heating value
HHV

Total fuel MWh consumed by the organization
13853

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
13853

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Comment
Boilers office building heating

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

Heating value
LHV

Total fuel MWh consumed by the organization
2659

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
2659

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

Comment

Total fuel

Heating value
HHV

Total fuel MWh consumed by the organization
17230

MWh fuel consumed for self-generation of electricity
718

MWh fuel consumed for self-generation of heat
2659

MWh fuel consumed for self-generation of steam
13853

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
<Not Applicable>

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	942	697	244.88	244.88
Heat	2659	2659	0	0
Steam	13853	13853	0	0
Cooling	0	0	0	0

C8.2g

(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

Country/area
Republic of Korea

Consumption of electricity (MWh)
217193

Consumption of heat, steam, and cooling (MWh)
49654

Total non-fuel energy consumption (MWh) [Auto-calculated]
266847

Is this consumption excluded from your RE100 commitment?
<Not Applicable>

C9. Additional metrics

C9.1

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

Description
Waste

Metric value
953

Metric numerator
953

Metric denominator (intensity metric only)
1,575

% change from previous year
165

Direction of change
Decreased

Please explain
The amount of landfill waste has been reduced. Due to the nature of the industry, no waste is generated except general waste, and there are no figures for waste recycling or reuse.

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
Reasonable assurance

Attach the statement
KMR+CDP+F13_□□□□□(E-GHG)_□□SDS_2021.pdf
KMR_verification_SDS(eng).pdf
Samsung SDS Sustainability Report 2022_ENG.pdf

Page/ section reference
Samsung SDS Sustainability Report 2022 page 94

Relevant standard
ISO14064-1

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 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Reasonable assurance

Attach the statement
KMR+CDP+F13_□□□□□(E-GHG)_□□SDS_2021.pdf
KMR_verification_SDS(eng).pdf
Samsung SDS Sustainability Report 2022_ENG.pdf

Page/ section reference
Samsung SDS Sustainability Report 2022 page 94

Relevant standard
ISO14064-1

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: Upstream transportation and distribution
Scope 3: Waste generated in operations
Scope 3: Business travel
Scope 3: Employee commuting
Scope 3: Investments

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+CDP+F13_□□□□□(E-GHG)_□□SDS_2021.pdf
KMR_verification_SDS(eng).pdf
Samsung SDS Sustainability Report 2022_ENG.pdf

Page/section reference
Samsung SDS Sustainability Report 2022 page 95

Relevant standard
ISAE3000

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?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C3. Business strategy	Product footprint verification	Green Data Center Certification	Green Data Center Certification is classified as eco-friendly services accroding to Korean Taxonomy. Samsung SDS Chunchoen Data Center acquired Platinum grade at Green Data Center Certification from Korean Data Center Council (KDCC). □□□□□□□□2022.JPG

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)?
Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.
Korea ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

Korea ETS

% of Scope 1 emissions covered by the ETS
100

% of Scope 2 emissions covered by the ETS
100

Period start date
January 1 2021

Period end date
December 31 2021

Allowances allocated
93044

Allowances purchased
0

Verified Scope 1 emissions in metric tons CO2e
3354

Verified Scope 2 emissions in metric tons CO2e
98528

Details of ownership
Facilities we own and operate

Comment

C11.1d

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

As Samsung SDS has been subjected to the GHG emissions Trading Scheme since 2015 in accordance with the Framework Act on Low Carbon, Green Growth, the company has been reporting GHG emissions on Scope 1, 2 to the Ministry of Environment. Designated workplaces where GHG emissions must be reported include 4 data centers, headquarter, 3 campuses, and communication hubs distributed throughout the country. The company established a GHG inventory system to aggregate data center energy consumption and GHG emission data in real time.

Samsung SDS responds to the emission trading system by actively implementing greenhouse gas emission reduction activities centered on products and business sites. In order to reduce CO2 emissions of data centers, Samsung SDS reduced GHG emissions through free cooling system, solar water heating, and use of renewable energy (solar power and geothermal energy) in the year of 2021. 4 data centers reduced GHG emissions by investing on facilities such as free cooling system, containment, solar water heating system, ventilation inverter, and improving data center operation.

The response strategy for Korea ETS, that we are participating, is primarily to reduce GHG emissions by various method such as investment on energy saving facilities and improvement of operation. Also, if GHG target is not fulfilled by analyzing the prediction of GHG reduction and emissions, emission units should be purchased in Korean Exchange(KRX). We now achieve our emission target with various emission reduction practices and by precise predictions.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?
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.

Objective for implementing an internal carbon price
Drive energy efficiency
Drive low-carbon investment
Identify and seize low-carbon opportunities

GHG Scope
Scope 1
Scope 2

Application
Samsung SDS uses internal carbon pricing when measuring ROI for eco-friendly investment at data centers (ex., liquid cooling, UPS-less, etc.) to calculate effectiveness to decide the investment amount.

Actual price(s) used (Currency /metric ton)
26000

Variance of price(s) used
Recent 6-month average carbon credit price.

Type of internal carbon price
Internal fee
Implicit price

Impact & implication

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?
Yes, our suppliers
Yes, our customers/clients

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
Provide training, support, and best practices on how to make credible renewable energy usage claims
Climate change performance is featured in supplier awards scheme
Offer financial incentives for suppliers who reduce your operational emissions (Scopes 1 &2)

% of suppliers by number
100

% total procurement spend (direct and indirect)
100

% of supplier-related Scope 3 emissions as reported in C6.5
100

Rationale for the coverage of your engagement
Samsung SDS is operating the management framework to facilitate the action of suppliers in terms of corporate sustainable management including climate change issues and management of GHG emissions. To do that, Samsung SDS developed ESG integrated code of conduct which should be observed by suppliers as part of contractual relationship with Samsung SDS. This code of conduct deals with largely four ESG areas including environmental issues such as climate change. Samsung SDS requires all suppliers for self-assessment on ESG management, and execute on-site inspection for suppliers with high risks (47 suppliers out of 207).

Impact of engagement, including measures of success
ESG code of conduct (CoC) for suppliers has been introduced, and all suppliers have agreed on and committed to it. During the process of fulling contractual activities, Samsung SDS periodically evaluate how well ESG values ingrained in the CoC are realized and managed by suppliers though self-assessment, on-site audit by Samsung SDS and evaluation-based feedback between Samsung SDS and suppliers. Upon the evaluation, suppliers with excellent level of ESG management has the advantage for securing and maintaining supply contract. Expected impact of this supplier management framework is to accelerate suppliers to manage and reduce GHG emissions proactively.

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Education/information sharing	Share information about your products and relevant certification schemes (i.e. Energy STAR)

% of customers by number
100

% of customer - related Scope 3 emissions as reported in C6.5
100

Please explain the rationale for selecting this group of customers and scope of engagement
Sharing information of acquiring Platinum from Green Data Center Certification and Green-Logistics Company certification

Impact of engagement, including measures of success
Providing more efficient data center services saving 20%< energy cost compared to our global peer data center privders (Chuncheon PUE 1.27)

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?
Yes, suppliers have to meet climate-related requirements, but they are not included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement
Complying with regulatory requirements

Description of this climate related requirement
A non-contractual supplier code of conduct featuring climate-related requirements

% suppliers by procurement spend that have to comply with this climate-related requirement
100

% suppliers by procurement spend in compliance with this climate-related requirement
100

Mechanisms for monitoring compliance with this climate-related requirement
Supplier self-assessment
First-party verification
Second-party verification
Supplier scorecard or rating

Response to supplier non-compliance with this climate-related requirement
Retain and engage
Samsung SDS Sustainability Report 2022_ENG.pdf

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

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate
Yes, we engage directly with policy makers
Yes, we engage indirectly through trade associations

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)
Samsung-SDS-TCFD-Report-2022.pdf

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy
Samsung SDS has established 2035 Net Zero Roadmap to engage and respond to climate change issues. The roadmap is well in line with the goals of the Paris Agreement including emission reduction plans and use of renewable energy for Scope 1, 2. The company has a plan to cope with SBTi and include Scope 3 as well to actively engage and push forward to diminish the impact on environment.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

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?

Focus of policy, law, or regulation that may impact the climate
Emissions trading schemes
Mandatory climate-related reporting

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Suwon Data Center was the only subject for GHG Target Management Scheme, and GHG inventory has been submitted every year since 2012. The inventory is verified by government authorized third party. Related regulations and law was enacted/revised in 2014 that the all business sites became subjects to report GHG inventry. Samsung SDS has been reporting GHG inventory for a total of 11 sites to GHG emission trading scheme and complies with the obligations.

Policy, law, or regulation geographic coverage
National

Country/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
Samsung SDS complies with the Target Management Scheme and submits emission reports in accordance with the government guidelines.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
<Not Applicable>

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate
Adaptation and/or resilience to climate change
Climate-related targets
Mandatory climate-related reporting

Specify the policy, law, or regulation on which your organization is engaging with policy makers
As a party to the Paris Agreement and a responsible member of the international community, Korea will faithfully join and contribute to the global efforts to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. Therefore, the Korean Government announced the 2030 NDC and 2050 carbon neutral targets at COP. The FRAMEWORK ACT ON CARBON NEUTRALITY AND GREEN GROWTH FOR COPING WITH CLIMATE CRISIS was enacted and is enforced from March 2022.

Policy, law, or regulation geographic coverage
National

Country/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
To align with the NDC and meet the target agreed as of the Paris Agreement, Samsung SDS fully abides to the FRAMEWORK ACT ON CARBON NEUTRALITY AND GREEN GROWTH FOR COPING WITH CLIMATE CRISIS. Net zero roadmap and equivalent target is ready to be announced and validated through internationally assuring initiatives such as RE100 and SBTi.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
<Not Applicable>

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

C12.3b

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

Trade association
Other, please specify (Korea Data Center Council (KDCC))

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

Has your organization influenced, or is your organization attempting to influence their position?
We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)
KDCC is an association representing data center industry under the Ministry of Science and ICT (MSIT). We delivered the opinions to the government that data centers contribute to country's total reduction of GHG and assign data center businesses to ETS.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)
0

Describe the aim of your organization's funding
<Not Applicable>

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

C12.4

(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).

Publication
In voluntary sustainability report

Status
Complete

Attach the document
Samsung SDS Sustainability Report 2022_ENG.pdf

Page/Section reference

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets

Comment

C15. Biodiversity

C15.1

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

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, both board-level oversight and executive management-level responsibility	Samsung SDS is certified with ISO14001 for all business sites including consideration of biodiversity-related issues	<Not Applicable>

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	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Commitment to avoidance of negative impacts on threatened and protected species	SDG

C15.3

(C15.3) Does your organization assess the impact of its value chain on biodiversity?

	Does your organization assess the impact of its value chain on biodiversity?	Portfolio
Row 1	Yes, we assess impacts on biodiversity in both our upstream and downstream value chain	<Not Applicable>

C15.4

(C15.4) 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	No, we are not taking any actions to progress our biodiversity-related commitments, but we plan to within the next two years	<Not Applicable>

C15.5

(C15.5) 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	Yes, we use indicators	Response indicators

C15.6

(C15.6) 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
No publications	<Not Applicable>	<Not Applicable>

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	Executive Vice President	Chief Financial Officer (CFO)

SC. Supply chain module

SC0.0

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

Founded in 1985, Samsung SDS is an ICT company with solutions which have been leading the digital transformation and innovation of clients for over 30 years across a wide range of industries. With operations in 40+ countries, Samsung SDS' solutions utilize advanced analytics platforms, AI, blockchain, cloud technologies to serve a diverse range of industries including financial services, smart manufacturing, global logistics, and retail. Our vision for the new era is to become a data-driven digital transformation leader by leveraging the most advanced ICT technologies and solutions to discover actionable insights. Sustainability is central to Samsung SDS to enable digital technologies to make life better for everyone, everywhere. Setting goals for sustainability, Samsung SDS focuses where we can have the greatest impact. We recognize and embrace the opportunity and responsibility to address some of the greatest shared challenges facing society today, including climate change, the shift to cleaner energy, access to quality education and economic opportunity, human rights protection throughout the supply chain, and data security and privacy. We are committed to enabling to achieve a low-carbon.

We are working to support all UN Sustainable Development Goals and TCFD. To find out more about us, please read our Sustainability Report at https://www.samsungsds.com/en/sustainability/downloads.html

SC0.1

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

	Annual Revenue
Row 1	13630000000000

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.

Requesting member
Samsung Electronics

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
44825

Uncertainty (±%)
5

Major sources of emissions
IT Services

Verified
No

Allocation method
Other, please specify (Sales amount)

Market value or quantity of goods/services supplied to the requesting member
1954545587

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Emissions was assumed by ratio of IT Services sales[Customer IT Services sales amount(1,954,545,587,145)*/SDS IT Services sales amount(4,284,475,672,000) multipled by Samsung SDS Scope 2 emission(98,528 tCO2eq) * Market value differ due to the input range limit

Requesting member
Samsung Electronics

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
5123166

Uncertainty (±%)
3

Major sources of emissions
Logistics

Verified
No

Allocation method
Allocation not necessary due to type of primary data available

Market value or quantity of goods/services supplied to the requesting member
18950485

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Scope 3 emission is calculated based on the distance of each transporation. All logistics data is accumulated into Samsung SDS logistics platform, Cello.

Requesting member
Samsung Display Co.,Ltd

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
3958

Uncertainty (±%)
5

Major sources of emissions
IT Services

Verified
No

Allocation method
Other, please specify (Sales amount)

Market value or quantity of goods/services supplied to the requesting member
172606593663

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Emissions was assumed by ratio of IT Services sales(Customer IT Services sales amount/SDS IT Services sales amount) multipled by Samsung SDS Scope 2 emission (98,528 tCO2eq)

Requesting member
Samsung Display Co.,Ltd

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
43771

Uncertainty (±%)
3

Major sources of emissions
Logisitics

Verified
No

Allocation method
Allocation not necessary due to type of primary data available

Market value or quantity of goods/services supplied to the requesting member
219941

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Scope 3 emission is calculated based on the distance of each transporation. All logistics data is accumulated into Samsung SDS logistics platform, Cello.

Requesting member

Harman International Industries Inc

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
370.71

Uncertainty (±%)
5

Major sources of emissions
IT Services

Verified
No

Allocation method
Other, please specify (Sales amount)

Market value or quantity of goods/services supplied to the requesting member
16164742617

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Emissions was assumed by ratio of IT Services sales(Customer IT Services sales amount/SDS IT Services sales amount) multipled by Samsung SDS Scope 2 emission (98,528 tCO2eq)

Requesting member
Harman International Industries Inc

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
10453

Uncertainty (±%)
3

Major sources of emissions
Logistics

Verified
No

Allocation method
Allocation not necessary due to type of primary data available

Market value or quantity of goods/services supplied to the requesting member
2090

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Scope 3 emission is calculated based on the distance of each transporation. All logistics data is accumulated into Samsung SDS logistics platform, Cello.

Requesting member
EQUINIX, INC.

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
139

Uncertainty (±%)
5

Major sources of emissions

IT Services

Verified
No

Allocation method
Other, please specify (Sales amount)

Market value or quantity of goods/services supplied to the requesting member
6067752137

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Emissions was assumed by ratio of IT Services sales(Customer IT Services sales amount/SDS IT Services sales amount) multipled by Samsung SDS Scope 2 emission (98,528 tCO2eq)

SC1.2

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

Sam

SC1.3

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

Allocation challenges	Please explain what would help you overcome these challenges
We face no challenges	N/A

SC1.4

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

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

Although Scope 2 emissions allocated by sales amount, Samsung SDS will provide customers to see their carbon emissions automatically calculated with weight and distance for each transportation through the Cello, Samsung SDS' logistics platform.

SC2.1

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

Requesting member
Samsung Electronics

Group type of project
Reduce Logistics Emissions

Type of project
Changing transportation mode (switch from air to rail)

Emissions targeted
Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings
512316

Estimated payback
3-5 years

Details of proposal
Changing transporation method using fossil fules to that of using renewable energy

SC2.2

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

No

SC4.1

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

No, I am not providing data

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

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

Please confirm below

I have read and accept the applicable Terms